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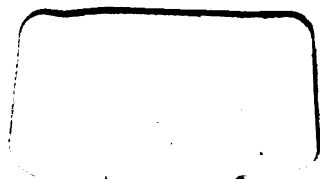
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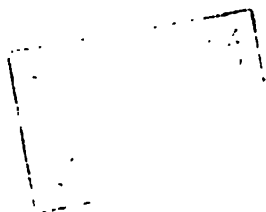
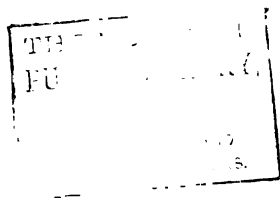
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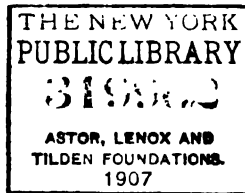
OF THE

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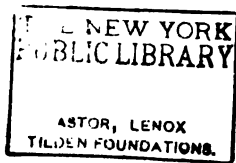
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ERRATUM.

On page 62 for "A Geographical Map of Cyprus," read "A Geological Map of Cyprus."

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THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

GEOGRAPHICAL RESEARCH IN THE YEAR 1903.

By the Rev. S. A. STEINTHAL, F.R.G.S., the Chairman of the Council.

[Addressed to the Members at the Annual Meeting, held May 17th, 1904.]

WHEN we made our arrangements for the Annual Meeting, a few short weeks ago, our dear old friend Mr. Sowerbutts undertook to occupy our time after the business proceedings by reading a paper on "The Story of the Village of Blackley." He had collected material enough to enable him to interest his hearers, and to throw light on social developments and customs and make us understand how the country village of a hundred years ago had become a ward of the city of Manchester, and what had been the kind of men who had been instrumental in making this great change. We who know our friend's graphic power, his sympathy with other people's thoughts and deeds, his genial humour, and his clear, straightforward mode of speech, cannot help regretting the treat we know we should have enjoyed; though, as we think of all that his death has taken from us, this is, after all, but one small item in the long list we can so sorrowfully enumerate.

You will have henceforth to let less able hands do his work, and less gifted men speak in his stead; and so this evening it falls to my lot to address you, instead of him to whose beloved voice we can no more listen.

Instead of telling the tale of the change of a country village into the busy suburb of a great city, and speaking of a century or more of growth and development, I have been asked to speak of the vast world on which we live, and to tell something of what men have done during the last year to increase our knowledge of its surface and of the physical and social conditions which affect for the well-being or otherwise, the circumstances of its inhabitants. I have not had much time to gather my materials, as it was only on Tuesday last that the Council imposed this duty upon me, and I have been busy in many ways since the Council met. But, fortunately for me, other men have laboured, and I have entered into their labours. In English and German annuals I have found summaries of last year's geographical research and have selected what I hope may interest you for half an hour or so.

During the life of many of us who are gathered here this evening, geographical research has to a great extent changed its character.

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When we went to school the largest part of Africa was an unknown land, of Central Asia little had been mapped out, and we were wont almost to think of Marco Polo as if his journey from the Mediterranean to Cathay was as little to be trusted as Sir John Mandeville's tales; there were broad blank spaces on the map of North America, marked as the great American desert, and in South America very little beyond the coast line and the banks of some great rivers were known to the map-drawers. Australia had but a narrow fringe of cultivated land round its insular continent, and the regions north of the Arctic Circle and south of the Antarctic were left blank, by men who drew maps from knowledge and not from imagination. But Africa and Asia, North America, and vast areas of South America and Australia have had to yield to the explorers' courage and perseverance, and we can almost say that, with the exception of the regions round both the poles there is little left for the discoverer to reveal, though for the explorer and the surveyor there is enough and arduous work still open.

Let us, then, first turn our attention to the discoverer's work, which has not been unimportant, as it has been directed, more especially during the last year, to the field which had been least visited—the Antarctic regions. For about sixty years whalers only had approached the great ice wall which Sir James Clark Ross described in his story of that memorable voyage during which, in 1841, he discovered Victoria Land, on which Borchgrevink was the first man to set foot in 1894. But a few years ago England, Germany, Sweden, and Scotland determined to attack the mystery of the Southern Pole with combined expeditions, marking out the area into four quarters. The English vessel "Discovery," under the command of Captain Scott, had sailed from England on the 6th August, 1901, and had started from Lyttleton, in New Zealand, on the 20th December of the same year, for Victoria Land. The German steamer "Gausz," under Dr. E. v. Drygalski, had sailed on the 11th August, 1901, from Kiel, and on the 8th December from Capetown, for Kerguelen Island. The Swedish vessel "Antarctic," under Dr. Otto Nordenskjöld, left Staten Island on the 6th January, 1901, to try and reach Graham Land. The Scottish expedition was the latest, not leaving, on its ship "The Scotia," under Captain Bruce, till the end of October, 1902.

Great hopes were raised by this united activity, aided by the improvements which science and experience had bestowed upon ship-building, navigation, and methods of investigation, and upon the wider knowledge which had been won in the application of the laws of health to the arrangement of ships and the provision of proper food and clothing.

It is impossible to state whether the expectations which were formed have been altogether reached, but we may congratulate all interested in the advance of geographical science on the results which are already made public, while hopefully looking forward to those which will be made known when the materials accumulated by the explorers have been classified and the conclusions to be derived from them have been ascertained. The limit of Southern progress has been advanced by about 245 miles, Captain Scott, Dr. Wilson, and Lieut. Shackleton having reached the high latitude of $82^{\circ}17'$ on the 162nd meridian east of Greenwich. New land was discovered by our English

explorers to the east of Ross's Victoria Land, which has been named Edward VII. Land. It rises to a height of 2,568 ft., and is covered with ice. Its coast line is precipitous, and offered no safe harbour for winter quarters.

The "Discovery" returned to Cape Armitage, the south point of Erebus Island, where she was icebound till late in the summer of 1903. While Captain Scott was absent on one of his many sledge expeditions the relief ship *Morning*, commanded by Captain Colbeck, who had accompanied Borchgrevink on his Antarctic expedition, arrived and landed her stores, took the invalids of the "Discovery" on board, and returned. Captain Scott and his companions again faced the hardships of another Antarctic winter, but the second relief expedition, the two vessels "*Morning*" and "*Terra Nova*," have since then again visited the South Polar regions, and we are glad to say that on the 1st April, 1904, the three vessels safely returned from their arduous enterprise to Lyttleton, with their rich stores of records, observations, and various collections made during this lengthy stay in the Antarctic regions, and the patron's medal of the Royal Geographical Society was yesterday awarded to Captain Scott.

The German expedition has not as successful a report to give of accomplished work. Proceeding south from Kerguelen Land, Drygalski steered in the direction of Termination Land, which Wilkes reported he had discovered in 1840, but the "*Gausz*" passed over the place where it was said to be situated without finding any trace of it. On the 21st February, 1902, however, a week subsequent to this disappointment, land was discovered just on the Antarctic Circle, to the south-west of the situation assigned to Termination Land. The perpendicular walls of ice which covered the coastline prevented any landing, and the attempt to trace its outline towards Knox Land in the west was found impossible owing to a thick chain of icebergs. An attempt was therefore made to sail round these to the north, in the hope of finding an opening towards the west, but in the night of the 21st to 22nd February the "*Gausz*" was beset with ice. It fortunately happened that this occurred when the vessel was protected by stranded icebergs, so that it was not exposed to the dangers of drifting at the mercy of floating ice. But prolonged sledge journeys could not be undertaken, as any sudden change in the ice might have cut off the means of communication with the ship, which was frozen in at a distance of almost 56 miles from land. Several short journeys were however made, and the one point of land which was free of ice, Mount Gausz, 1,200 ft. high, was frequently ascended, and from a captive balloon, which ascended 1,640 ft., observations showed no break in the ice surface. To the east high ice-covered land was seen, but could not be reached. The expedition did not get clear from the ice till the 8th February, 1903, but then immediately tried to penetrate westward with the intention of risking another winter's stay. Till the 8th April Drygalski did his best to penetrate the drift ice to the south, but as new ice was continually forming, and as the expedition would be able to do no useful work if fast in a drifting shoal, he reluctantly turned on the 8th April towards the open sea, and reached Simonstown on the 9th June, in the hope of being able to make a new attack on the ice at the end of the southern winter of 1903.

The German Government, however, refused the funds necessary for this purpose, and the expedition came to an end. The high hopes with which it started had not been realised, but materials have been gathered to help in settling the question of the extent of the Antarctic Continent. There is good reason to conclude that it extends from Knox Land in the east to Kemp's Land in the west, a distance of more than 10 degrees of longitude on the Antarctic Circle, and it is highly probable from the frequent recurrence of "föhns," or south winds, that it continues even further, joining Victoria Land. Drygalski gave the name of Kaiser Wilhelm II. Land to the region he discovered, so that the names of three generations of our Royal House are honoured in the Antarctic regions.

The Swedish expedition, under Captain Nordenskjöld, has not been as successful as we English were in topographical results, but has been fortunate in securing greater natural historical—especially geological—collections, and its experiences in regard to travel and wintering in these inhospitable regions are very valuable. I can recommend you to the last number of the Royal Geographical Society's *Journal* for a very interesting account of the rescue of the expedition by the gunboat Uruguay, which the Republic of Argentina sent to its relief, under the command of Captain Irizar. Though the "Antarctic," as the Swedish vessel was called, was so injured by ice as to compel its officers and crew to abandon it on the 12th February, 1903, all the valuable collections have been saved and brought home.

The fourth expedition, on board of the "Scotia," under Dr. Bruce's guidance, only left Scotland in the summer of 1902, and left the Falkland Islands for the Weddell Sea on the 26th January, 1903. As one of the chief objects of this expedition was to add to oceanographic knowledge, its progress was delayed by frequent soundings and by the trawling it undertook. It reached the South Orkney Islands on the 2nd February, and landed on Saddle Island, which had not been visited since Weddell was there in 1820. To avoid the pack ice they were obliged in 60° south latitude, to take a wide curve to the east, turning south on the 25th meridian east of Greenwich and penetrating to the 70th parallel south without seeing land. Their furthest sounding gave 15,233 ft. To avoid being caught in the drift the "Scotia" returned to Laurie Island, one of the South Orkneys, and took up winter quarters on the 21st March. Though their quarters were only 60° south they were icebound for nearly eight months, and were not able to start for Buenos Ayres, whence they were to take fresh supplies, till the middle of November, leaving Dr. Mossman with four men to keep up the meteorological observations. In the beginning of January Bruce started back for the South Orkneys, taking some Argentinian observers to replace Dr. Mossman and his assistants, while he made another attempt to explore the Weddell Sea. As he does not intend to spend another winter in the Antarctic, we shall no doubt be hearing news from him before long.

Though the chief attention of the scientific world has been turned of late to the South Pole, the North has not been neglected. In the winter of 1902-3 Baron Toll was the only explorer who was known to be exposed to the dangers of an Arctic winter. It is almost certain that after his many successful journeys in New Siberia the name of

this indefatigable traveller must be added to the list of those who have sacrificed their lives for science. The Russian Government has sent out several expeditions in search of him, and Lieut. Koltschack, in command of one of them, penetrated last August as far as Bennett Island. He found there that from the 21st July till the 26th October, 1902, Toll had been on the island, and had then returned across the ice towards New Siberia. Koltschack was unable to find any trace of him there when he returned thither last August, and where he remained till the end of November. No trace could be found by the expedition of Brusnew of the missing explorer, nor of the astronomer Seeberg and the two Jakuts who accompanied him. Dr. Nansen thinks it possible that they may have been carried by his Fram current to the west; and has suggested that relief expeditions should be sent to Franz-Joseph Land and Spitzbergen. Baron Toll and his companions were only provisioned for a brief time, and it is to be feared that they would not survive the long drift as did the well-prepared crew of the "Fram."

It is unlikely that the expedition which Mr. Ziegler, of New York, had sent out on the steamer "America," under the command of August Fiala, and which sailed from Vardö on the 10th July, may have wintered on Franz-Joseph Land. No news has been received of these explorers since the 20th July. The avowed object of this expedition is to hoist the Stars and Stripes at the Pole, which it was intended to try and reach on sledges.

One other expedition left Christiania on the 16th June, on the more scientific errand of re-visiting the Northern Magnetic Pole. In Greenland it took in a supply of Esquimo dogs, and started through Lancaster Sound for Boothia Felix. The journey home is planned to lead through the Behring Straits, and thus to use once more the North-West Passage. The expedition was provided with stores to last for four or five years.

Of the high table-land of Central Asia the greater part is still unexplored, though Sven-Hedin has done so much in his two great voyages to survey its mysterious deserts, mountain ranges, and track its mighty rivers and its shifting lakes. The physical obstacles which beset all travel in this region, and the unbending fanaticism with which the spiritual authorities of Thibet forbid all intercourse between their subjects and Europeans, have kept Thibet an almost entirely unknown land. Two unsuccessful attempts have been made to penetrate to the interior, and both have failed to overcome the difficulties which met them. A French captain, F. Anginieur, and an Englishman named Crosby started on the 15th August from Kaschgar, and, by way of Yarkand and Chotan, reached Polu, crossing the Kysyldowan Pass, which reaches to 16,628 ft. above sea level. In trying to reach Rudok, which lies to the south, where they expected to meet supplies, they lost their way, and after wandering in the district of Aksaitschin they were obliged to cross the Karakorum Pass, and at last found their way down to Leh. The road from Kysyldowan to the Karakorum is a route not mapped out before, and is therefore a valuable addition to geographical knowledge.

For the map of Central Asia the journey of a French traveller, Lieut. Grillères, has added new material. He has found the physical

obstacles, which every traveller describes, unconquerable. Coming from the S.O., he was endeavouring to explore the upper course of the Saluen, which rises in East Thibet and flows through the Chinese province of Yunnan, where Lieut. Grillères began his voyage of discovery. After exploring about sixty-two miles he found himself obliged to return, defeated by the hardships he had to encounter. Captain Rawling also, who was trying to complete Captain Deasy's survey of Western Thibet towards the east, was stopped in his journey by the authorities, who would not permit him to continue his route, as he intended, to Rudok. But before they interfered he had successfully surveyed a large amount of territory, and had added much to the exact cartographical knowledge which the world possessed.

Whether any additions will be made to science by what I see the Geographer's Kalendar for 1904-5, published by Julius Pethes, of Gotha, is pleased to call the campaign of Col. Younghusband, remains to be seen. This is not the place for me to express any opinion, but I feel sure that you will all regret that what was intended to be a peaceful mission has assumed the military character it bears at present.

Russian and Chinese Turkestan have been visited by three American geographers and geologists, Messrs. Pumpely, Davis, and Huntington, and the results of their journeys are awaited with interest.

A Russian expert, L. Berg, has devoted very careful attention to Lake Balkash, and has determined its shape and position with an amount of accuracy previously unattained. While we are receiving many accounts from Asia of the desiccation of many districts, it is interesting to learn that this large inland sea, situated in a very dry climate, and with changing tributaries, is increasing in size and preserves the sweetness of its water. Russia's antagonist, Japan, has also been engaged in interesting scientific inquiries in Central Asia, as to remains of old Buddhistic culture. One expedition went from Osh by Kaschgar and Taschkurgan to Cashmir and India, while another proceeded by Yarkand and Chotan to Askaniya. The return journey is planned, and extends to the crossing of the continent to Hankou on the Yangtse-Kiang.

It would be easy to prolong this list of adventurous travel, as English and French explorers have been busy in several parts of Asia, and the Swiss travellers, Drs. F. and O. Sarasin, who had already done good work in the Island of Celebes in 1896, have, in February and March of 1903 been engaged in the north-east of the same island, and have accumulated very valuable information on its natural history, and its geological relations to neighbouring islands.

In Africa the most important new discoveries have been made in connection with expeditions to define the boundaries of the spheres of influence of different European nations in the Dark Continent, which have hitherto been marked on our maps in straight lines, and will in future follow the results attained by careful trigonometrical surveys of the districts in question. Our knowledge of Lake Chad has been greatly advanced; its shores and the islands which are so numerous, near its eastern and south-eastern banks, have been carefully surveyed, while the area it covers has been found to be very considerably less than was hitherto supposed. The details of Col. Destenave's

surveys are not yet published, and as he was the chief explorer of this district, they are awaited with great interest.

We are, in this district especially, looking both to West and East as well as to parts of Central Africa with hopeful anticipation, as, from the reports of colonists and missionaries, as well as from representatives of the Government in all of them, we are hearing of land suitable for cotton cultivation, and efforts are being made in this country—which, I hope, will not be allowed to die away as previous attempts have done—to promote the growth of the raw material of our staple industry. The importance of these experiments cannot be over-rated, but I trust they will be conducted with persevering energy, and at the same time with caution. If over-sanguine hopes of immediate success be aroused, the inevitable lapse of time before a new system of agricultural industry can be made to influence so vast a trade as that of cotton with telling effect will dishearten and discourage. There are very many things to be considered beside the suitability of the land for the growth of the plant. The provision of labour and the cost of carriage have to be dealt with, and though these words are easily spoken, they involve so much that I hope the old-fashioned dogged persistence, which has so often been the secret of our country's success in days past, will not be wanting in those who have been awakened once again to see the danger of so large an industry as the cotton trade being almost altogether dependent upon one market for the supply of its raw material.

And now, ladies and gentlemen, pardon me for inflicting what I fear cannot have been anything but a dry and wearisome catalogue of facts upon you. If you only knew how much longer I could easily have made it, you would, I am sure, be grateful to me for my brevity.

But I cannot close this address without again referring sorrowfully to the events which sadden what some of us had been looking forward to as a meeting full of promise and of hope. We had expected to cheer one another with the anticipation of soon meeting in ampler buildings, erected with special consideration to meet our wants and carry on our work in ease and comfort. And we are called upon to pause and seek for strength to bear with resignation the trials which it has pleased God in His unsearchable wisdom to send upon us. All men must die; and it is no misfortune to pass from this temporal being into that which is eternal. But for those that are left, when their beloved pass on, there is sadness and sorrow. We are traversing the shadows. We have already in meetings of this Society spoken something of what we have felt when our dear old friend, our Secretary, entered into his rest; but no words can tell the measure of our loss.

We have shared in the recognition of the high services which Sir Henry Stanley has rendered—almost the greatest of African explorers—to the world, and while I have been writing this address there has come to me the sad news of the close of the life of one who was a generous friend of this Society; but not of it alone, but of so many, that we cannot think how wide-felt is the grief which the death of John Pennington Thomasson will have caused. My friends, I have spoken of our losses, and my heart is sore.

There are vacant places among us. God grant that, remembering what our dear ones have done, we may strive to go and do likewise.

MY EXPERIENCES AS A PIONEER MISSIONARY AMONGST
THE CANNIBALS OF NEW GUINEA.*

By Rev. SAMUEL MCFARLANE, LL.D., Hon. Member of the Society.

[Addressed to the Society in the Coal Exchange, Market Place, on Tuesday,
January 26th, 1904, at 7-30 p.m.]

A PIONEER missionary amongst cannibals, who devotes his life to gaining their confidence, acquiring their language, translating Scriptures and books for their benefit, and teaching them to



read and follow their precepts, and help them generally to a civilised and Christian life, should be what is called "an all-round man." He has to be architect and builder, carpenter and blacksmith, doctor and teacher, preacher and professor, and should know how to manage a horse and a boat. He should be a man of some presence, as the savages are at first more impressed by quantity than quality, their chiefs and leaders being men of imposing physique. Let me begin with a few personal remarks, showing how I was unconsciously prepared for my work. A college training is a very necessary thing for a man who has to translate Scriptures from Hebrew and Greek; but it is only a small part of the training necessary to make a good pioneer missionary amongst savages.

* See Map, Vol. II., page 312.

It was my good fortune, although I did not realise it at the time, to spend three and a half years at Nasmyth's, of steam-hammer fame, working at drilling machines, planing machines, slotting machines, the turning lathe, and the fitter's bench; then a couple of years in Manchester amongst locomotives.

I well remember the last bit of work I did as an engineer: it was to fit on the handle by which the engine driver lets the steam pass from the boiler to the cylinder. The machinery may be all right, the cylinder may be all right, the steam may be all right; but there must be a handle to let the steam from the boiler into the cylinder. I remember distinctly the thoughts that passed through my mind as I laid down the file, and went away to begin my college course, and become a handle in God's hands for letting the Gospel steam into the minds and hearts of the savages. I always look back upon those years spent in the workshop as a most important part of my training for pioneer work in the mission field.

In relating some of my experiences amongst the cannibals, I must begin by introducing you to their *homes*, "where every prospect pleases, and only man is vile." They are scattered amongst a thousand islands in the Pacific—coral and volcanic—of all shapes and periods of construction, from the coral reef and volcanic cone, to the verdant oasis of a thousand years, beauteous with its garland of palm trees, pandanus, and bread fruit, surrounded with its barrier and fringing reefs. And the grand volcanic islands, with their mountain heights, having vast craters, with deep gorges between: lofty peaks, abrupt precipices, and sharp saddle ridges of basalt, lava, and volcanic *débris*, some more and others less recent. These volcanic traces extend throughout Polynesia, and clearly show that ages ago all the vast ocean must have been the bed of an indefinite number of volcanoes. It is supposed by scientific men, who have surveyed the places and studied the question, that there could not have been less than *one thousand* volcanoes in violent, perhaps simultaneous, action from the Sandwich Islands to New Zealand.

Between Australia and Mexico there are some of the most extensive mountain chains in the world. The two principal are the *Samoa*n and *Hawaiian*. The height of summits in these chains, if measured from the bottom of the sea, would surpass the most majestic peaks of the Himalaya range, being nearly *six miles high*.

In some of the homes of the cannibals the sublime and the beautiful are found united as in no other part of the world. Lava-belching volcanoes, throwing up vast mountains, and then shattering them again with earthquake throes and convulsions; torrents leaping precipices of a thousand feet; the blue, unbroken billows of five thousand miles of ocean, thundering incessantly upon their coral coasts; placid lagoons and shore reefs, beautiful with the shrubbery of a genial ocean; a tropical, velvet verdure, covering with its grateful mantle the steepest mountain crags; groves of palm and bread-fruit trees, like cedars of Lebanon; dells and valleys and palm covered plains, like the Garden of Eden, with every tree that is pleasant to the sight and good for food. These are some of the natural features and contrasts of beauty in the fairy gardens of the homes of the cannibals of the South Seas.

What shall I say of *New Guinea*, this great home of the cannibals? Whilst empires have risen, flourished, and decayed; whilst Christianity, science, and philosophy have been transforming nations, and travellers have been crossing Polar seas and African deserts, and astonishing the civilised world by their discoveries, New Guinea has remained the same; sitting in the blue, warm, southern ocean, kissing the equator at the north, and shaking hands with Australia at the south; bearing on her bosom magnificent forests and luxuriant tropical vegetation, yet lifting her snow-capped head into the clear, cold atmosphere three miles above the sea; steaming hot at the base, where the natives may be seen in the cocoanut groves, as they have been for ages, making and mending their bows and poisoning their arrows, and with flints and stones making bamboo knives and spears, and revelling in war and cannibalism; whilst it is freezing cold at the summit, where the foot of man has never disturbed the snow. It is the largest island in the world, and was discovered by a Portuguese



Pottery Makers, Hanuabada, Port Moresby.

navigator, by a mere accident, nearly four hundred years ago. It is a land of magnificent mountains and fertile valleys; with green-clad hills, and sunny slopes, and rich plains; it has great forests, full of valuable timber and beautiful birds; it has noble rivers and grand waterfalls, and extensive cocoanut groves, and well-cultivated gardens, and numerous wild fruit trees and vast alluvial plains, and, presumably, great mineral wealth. Who knows what new species may not be hidden in the, as yet, unknown interior, the remaining traces of those that are now considered extinct? And it is quite possible that ancient structures may be found similar to those in the Marshall group, which are supposed to have been built by a prehistoric race of men, at a period when a continent connected all those islands with New Guinea.

These are the island homes of the cannibals; but what of their dwellings? Professor Drummond, in his "Tropical Africa," says, with reference to the savage, that "one stick pointed makes him a spear: two sticks rubbed together make him a fire: fifty sticks tied

together make him a house: the bark he peels from them makes his clothes: and the fruit which hangs on them form his food."

Well, that exaggerated description gives you a fair idea of the cannibal's dwelling and belongings. His wants are few, and a bountiful nature around him easily supplies them. These savages do not require much capital to carry them through the world; although, from the professor's description, it is evident that the savages of Central Africa are much inferior to those of Polynesia and New Guinea. Amongst the latter I have seen all kinds of houses built with "sticks" and thatched with palm leaves; from small, rude ones built in trees, to well-built two and three storeyed houses, neatly floored and matted, with ornamental carved door posts, and single-storeyed houses up to seven hundred feet long; also *canoes*, from the rudest kind to well-built boats, with planks sewn together and knees fitted in, and decked, and propelled by two enormous sails made from matting.



Kotari Village, Inland from Bootless Inlet.

Professor Drummond's *description* is not so misleading as the *inferences* which he and others draw from the condition of the savages. Anthropologists and ethnologists lead us to regard these natives as the *zero* from which to reckon our intellectual progress upwards. Their mental capacity has been universally accepted as being of a very low order; but this arises from ignorance and a confusion of ideas. Those who make comparisons between ourselves and the lower races take as the measure of our *individual* mental stature the whole of that vast intellectual accumulation which belongs to society and past generations, and which is, strictly speaking, the true measure of our *social* efficiency. Nearly all the writers who deal with the comparative development of the inferior races show a tendency, even amongst the highest authorities, to quite lose sight of and ignore the fact that all that man produces to-day more than his cave-dwelling ancestors, he produces by virtue of the accumulated achievements, inventions, and improvements of the intervening generations, together with the social and industrial machinery which is their

legacy—999 parts out of the 1,000 of every man's produce are the result of his *social inheritance and environment*.

If we examine the evidence which is generally accepted as tending to show the great intellectual difference between the higher and lower races, we shall see to what conclusions we are led.

In the languages of the savages, for instance, there are, as a rule, no words to express many of the more complex ideas and relationships that have been familiar to us from our childhood. They are nearly always without but the most elementary conception of *numbers*. They are generally unable to count, and frequently they are without words in their language to express numbers higher than five, or even three. Indeed, one of their languages which I reduced to writing had only words for one and two; to say three, they say two and one; and for four, two and two, and so on.

Now, this fact has been frequently noticed: indeed, scarcely any other peculiarity seems to make so much impression upon members of the higher races when first brought into contact with uncivilised men. Mr. Galton's experience in this respect has become classical in anthropological literature. He states that when bartering is going on each sheep must be paid for *separately*, and that it would puzzle a native to pay him for two at one time; that when making a purchase for ten sticks of tobacco, the hands of the native were spread out on the ground, and a stick had to be placed on each finger.

The fallacy which underlies the reasoning based on facts of this kind, by which the mental inferiority of uncivilised races is supposed to be proved, is not immediately apparent, but an undoubted and extraordinary fallacy exists nevertheless. It is one of the commonest examples of that prevailing tendency to confuse the *mental equipment* which we receive from the *civilisation* to which we belong with the *mental capacity* with which *nature* has endowed us. The fact is, that as individuals only we possess much the same natural grasp of numbers as the natives of whom Mr. Galton has so low an opinion. We make the mistake in reckoning our power of counting as part of the intellectual equipment we have received from *nature*. We have only to reflect to perceive that it is nothing of the kind. Our scale of numbers is nothing more than a kind of mental tape measure with which we are provided ready-made by the society to which we belong, and which we apply to aggregates of numbers just as we should an ordinary tape measure to aggregates of units of length to determine how many there are. But this mental scale is certainly not born with us. It has been the slowly-perfected product of an immense number of generations, stretching back into the dim obscurity of the past. Without this scale we should, in fact, have to resort to the method of uncivilised man. Even the aborigines of Australia, whose mental capacity is reckoned degrees lower than the cannibals amongst whom I have spent so many years of my life, exhibit under our eyes powers of mind that should cause us seriously to reflect before committing ourselves hastily to current theories as to the immense mental gulf between them and ourselves. In the State schools of the Australian colonies it has been observed that aboriginal children learn quite as easily and rapidly as children of European parents. For three consecutive years the Aboriginal School at Remakayack, in Victoria,

stood highest of all the State schools of the colony in examination results, obtaining 100 per cent of marks. The same facts present themselves in the United States of America.*

The lacking qualities are not intellectual qualities at all. It is the quality of *intense application* and of *prolonged, persevering effort* in which they are lacking, and without which it is impossible to obtain high proficiency in any branch of learning.

Allow me to introduce here some of my experiences about the *languages and religion* of the cannibals, which I have made a special study for nearly half a century, and reduced some of the former to writing, and can testify that in some respects they are superior to our own. Some of them have a *court* as well as a common language. Inclusive and exclusive pronouns; dual and triple numbers, and as many as seven words for *you*, all of different grades. You can insult or compliment a man by the *you* that you apply to him. And the words of the language are all as precise in their meanings as if they had been defined by Johnson; the grammar is as regular and uniform as if it had been formed by Lindley Murray; whilst the pronunciation is as exact as if it had been settled and phonographed by Walker; thus clearly pointing back to a higher state of civilisation, from which they are falling.

Our best philologists tell us that all languages, in their development, proceed from the *simple* to the *complex*; from *monosyllables* to *polysyllables*, and from *agglutinative* to *inflectional*. If that be so, then I claim for the languages of Polynesia and New Guinea that they are amongst the oldest languages in the world.

How came these cannibals to have such languages if they have not brought them down with them? Here are two large sections of prehistoric men, using stone implements and living in lake villages, whom we have been taught to regard as the lowest type of humanity—a sort of link between the ape and civilised man, in a state of development *upwards*: but their language proves that they could not possibly have brought it from *below*, and points to their having been connected with the old world civilisations, they themselves, like their language and religion, being but a ruin of former greatness.

With reference to their *forms of worship*, I must confess that missionaries have been too apt to look upon all other religions as something totally distinct from their own; just as formerly they used to describe the language of barbarians as something more like the twittering of birds than the articulate speech of men.

But the *science of language* has taught us that there is order and wisdom in all languages, and that even the most degraded jargons contain the ruins of former greatness and beauty. So the *science of religion* has taught us that the most barbarous forms of faith and worship contain some sparks of the true light, that can be rekindled

* I read the other day, after having written the above, the following, with reference to the 'illusion of heredity.' The writer says, "There is no vague theory in the popular mind to-day which is doing more positive mischief than this bugbear of heredity. Evil of all kinds, disease, moral obliquity, mental defects are put down to heredity, and man is, in numberless cases given up, physically, morally, and mentally as incurable."

"This age is becoming positively morbid with the inoculation of the idea of heredity. I cannot enter into the discussion of the question, but I will state my belief that, as popularly understood, there is no such thing as heredity at all. I believe, that is to say, that everything that is commonly put down to transmission from matter to matter is due rather to the influence of mind upon mind."

C. E. BEECHY, B.D.

by the Gospel. Every religion, even the most imperfect and degraded, has something that ought to be sacred to us. For there is in all religions a sacred yearning after the true, though unknown, God. Even among the cannibals we find the radical elements of all religions—a belief in a God and a future state; a sense of human weakness and dependence; a belief in a Divine government of the world; a distinction between good and evil, and a hope of a better life.

I am well aware that some writers assume that man has been found without a religion. Even Professor Huxley says, "There are savages without God in any proper sense of the word, but there are none without *ghosts*." Just so, and we find that whatever qualities these ghosts may be supposed to possess or to lack, they are invariably *supernatural*. And it is from fear of consequences from this supernatural agent, whatever form he may assume, that secures the observance of a set of customs under which savages live, which are "as forcible as laws."

The statement, says Tiele, that there are nations or tribes which possess no religion, rests either on inaccurate observation or on a confusion of ideas. No tribe or nation has yet been met with destitute of belief in any higher beings: and travellers who asserted their existence have been afterwards refuted by the facts. It is legitimate, therefore, to call religion, in its most general sense, an universal phenomenon of humanity.

Quatrefages, approaching the subject from a totally different direction, as a naturalist, is equally emphatic. We nowhere meet, he says, with atheism, except in an *erratic condition*. In every place, and at all times, the mass of population have escaped it; we nowhere find either a great human race, or even a division, however unimportant, of that race, professing atheism. A belief in beings superior to man, and capable of exercising a good or evil influence upon his destiny; and the conviction that the existence of man is not limited to the present life, but that there remains for him a future beyond the grave. Every people, every man believing these two things, is *religious*, and observation shows more and more clearly every day the universality of this character.

When we leave the conjectures of hypothetical anthropology and confine ourselves strictly to what historic science has observed, we find that man has always and everywhere tended to a religious belief.

When we leave savage man and rise a step higher to societies which have made progress towards civilisation, we find the prevailing religions still everywhere possessing the same distinctive features; they continue to be invariably founded on a belief in the supernatural. In the religion of the ancient Egyptians, and of the Chinese, we encounter this element at every point in their worship of the dead. The religion of the ancient Assyrians presents the same essential features; so does that of the early Greeks and Romans. Indeed, we might survey the whole field of man's religions, both anterior to and contemporaneous with our modern civilisation, and we shall find that all religious beliefs possess these characteristic features. There is no exception.

The fact seems to be that all the religions of the world have been types and shadows of Him that was to come: that Christianity stands

in the same relation to all other faiths of mankind that man does to the brute. As man is to the ape, so is Christianity to the primitive beliefs of the world.

Having now introduced you to the *homes, language, and religion* of the cannibals, and to some of my thoughts concerning them, I will proceed to relate some of my experiences in coming into personal contact with them.

Forty-five years ago I was placed on a cannibal island in the South Seas, and told to learn the language and improve the people as best I could. When the "John Williams" sailed away with our missionary friends my wife and I found ourselves in the midst of a crowd of 2,000 noisy, thieving savages, mad with delight at having got a missionary amongst them with so many boxes, the contents of which they were most anxious to behold. Our early ideas of a missionary landing among the heathen might have led us to suppose that they considered the boxes contained Bibles, which they were anxious to get. A man has not to be in the mission field long before he gets these early impressions rather rudely knocked out of his head. We soon found that there was no time for sentimentality. Provisions and cooking utensils had to be unpacked, also goods for barter with the people. To sit down and cry would be a very poor substitute for a dinner! So we set to work to make our little cottage as homelike as possible, notwithstanding its mud floor and grass roof—the one about as wet as the other when the rains came—and we succeeded, with packing cases for tables and chairs, and the floor covered with native mats, and the walls decorated with pictures from the *Illustrated London News*, which were the admiration of the natives, in making the place the most comfortable, and also the most handsome, residence on the island.

Here began the *third* part of my training, all unconsciously, for the great work to which I was to be called, thirteen years after, in New Guinea. The language had to be acquired and reduced to writing; schools established; books prepared; Scriptures translated; churches formed, and young men trained for pastors and pioneer evangelists to carry the Gospel to the regions of darkness beyond. To this work I devoted the first thirteen years of my missionary life, and I had the happiness of seeing a wonderful change from idolatry, cannibalism, and constant wars to the worship of the true God, peaceful industry, and a growing education; schools and churches established throughout the island; the New Testament and Psalms translated into the language of the people; a teachers' seminary, for supplying native pastors and pioneer evangelists, had become a great and popular institution; and European stores were established in different parts of the island, on account of a rapidly growing trade with the natives.

The practical turn of my mind, due to my early training, led me to establish at Lifu, as subsequently at New Guinea, an industrial school, in order to lead the natives from ignorance to the knowledge of practical arts, and from indolence to industry. We had a good sawpit, for sawing logs from the bush into planks for the workshop; we had carpenters' benches, a turning lathe, a blacksmith's forge, and a good supply of tools. For any one who would undertake to build

a lath and plaster cottage we offered to superintend the building and provide doors and windows free of charge, which led to the erection of many pretty cottages in the village.

The industrial part of the institution became immensely popular; natives came from all quarters to see the sawing of timber, the house-building, the boat-building, and the furniture-making. Some very amusing incidents occurred in connection with our labour department. For instance, I remember, on one occasion, after I had introduced a horse from Samoa, an animal that the natives had never seen before, and which some of them, it seems, thought was a big dog; one of the old men questioned my native henchman, Gucheng, as to how it was that although he had been feeding his dog for six months, giving it as much as it could eat, hoping that it would become like the missionary's, that he might ride it, yet it did not seem to get much bigger. This serious statement and inquiry caused much merriment among the young men from the mission station. There is some excuse, however, for the old man's mistake, as none of them knew what a dog might become as the result of being well fed for six months, none of them having tried the experiment before! My horse, as may be supposed, was the object of great wonderment and admiration; even Gucheng was surprised and bewildered when I told him that it would have to wear *shoes*, and the making and putting on these excited great interest. I had taken out with me a portable forge and a hundredweight of scrap iron, so I determined to try my hand at making a horseshoe. I got a full-size drawing by placing the horse's foot on a piece of board and drawing a pencil line round the hoof. Then Gucheng and I set to work, in the midst of an admiring crowd, to make the shoe, he blowing the bellows and I manipulating the iron, the natives yelling and shouting with astonishment and approval as the sparks flew and the iron was bent into shape. I must confess to a feeling of pride myself as the iron began to look like a horseshoe. The real difficulty, however, began when I tried to fasten it to the horse's foot. Having no proper horseshoe nails, I tried the ordinary ones, and it was fortunate that we had taken the precaution to tie the horse's head to a post, for he gave unmistakable evidence of disgust at this amateur horseshoeing. Seeing that he could not get away himself, he seemed to think that the next best thing was to make us go. I had my back to him, with his foot between my legs in orthodox fashion, driving in the nail, and looking at every blow to see when it was going, as I thought, to come out on the hoof. The natives stood around in evident admiration at the horse's unflinching endurance, a quality which they admire in one of themselves, who, after a battle (as I have witnessed) will allow a piece of a spear to be cut out of his back without moving a muscle, the operator using a piece of a glass bottle; so that it came as a sort of welcome relief to them to find that there was a limit to the endurance of this new animal, when they saw him send me sprawling a couple of yards away, leaving part of my nether garment behind, but two yards off! The natives simply roared with laughter. I picked myself up and made a feeble attempt to join in the merriment, pulling my working apron round to the back, feeling that it would be more useful behind than in front. My next attempt was to make some proper nails, but I soon found that it

was easier to make a *horseshoe* than to make a *nail*. To draw out a piece of iron to a sharp point without splitting is no easy task for an amateur. As a last resort I determined to fasten the shoes on to the horse's feet with *screw-nails*; but when I asked one of the natives to hold the foot, while I bored a hole with a gimlet, he, to the intense amusement of the others, made a sign, the meaning of which is very much like the one in this country made by putting the thumb on the nose and spreading out the fingers! However, we got the shoes fastened on all right with the screw-nails, and ultimately we received from Sydney proper shoes and nails and tools, and also a lesson from a blacksmith about horseshoeing, which enabled one of the boys, in a very short time, both to shoe and ride the horse, to the wonder and delight of the people.



Krepunu, a Native Village in New Guinea; also showing Stone Axes, Native Pottery, the Method of House-building, &c.

During the first six months after my settling at Lifu I made a tour of the island for two reasons: to acquire the language, and become acquainted with the villages. During that and subsequent journeys I was surprised to find that the water in some large caverns near the middle of the island, though perfectly fresh, rose and fell

with the tide. It appears from this that the sea-water percolates through the rocks of a coral island, and the rain that falls on it percolates downward till it reaches the salt water, and, being lighter, does not readily mix with it, but is raised and lowered by it as the

tide flows and ebbs. I felt that if this should prove to be the case we might dig wells at the inland villages, and everywhere find good fresh water about the sea level. This would be a great blessing to the numerous villages, whose only means of storing rain-water was by scooping holes in the trunks of living cocoanut trees, which were filled by the rain running down the stem. Of course, such water was scarce and impure. Without making any attempt to explain my theory and hopes to the natives, I determined to test it by digging a well, simply informing them that I hoped to find water. Having made a windlass, we commenced operations on the mission premises, a few yards from our house, that I might the more easily superintend the work. At first I had no difficulty in getting native labour, for although the natives declared most positively that there was no chance of finding water there, there being no caverns near, still they were willing to dig some distance to prove their contention and dissipate this *papali* (foreign) idea from the missionary's mind. The mission house was about forty feet above the sea level, so that I knew we must dig the well that depth before there was any reasonable hope of finding water. When, however, they had reached a depth of about twenty feet they threw down their tools and positively refused to descend the well again. I tried to engage others to continue the work, but could not succeed. It seems the matter had been publicly discussed, and the whole population had pronounced against the well-digging. The young people in our school were, about this time, becoming acquainted with the mysteries of geography. They told their parents and relatives that the world was *round*, and that *Peretania* (Britain) was on the other side, immediately underneath Lifu. This astounding statement would have been scouted had it not been for the digging of this well. They had, as yet, very hazy ideas about distances, but it was enough for them to know the position of my country. They thought they saw clearly my object in digging the well. To look for water at such a place was evidence of folly that could not be squared with their exalted ideas of the missionary, but to make a hole through the earth, and be let down and hauled up by a windlass, was an idea worthy of the white man! They knew something of the dangers of short voyages, but what must a voyage to *Peretania* be! They all saw clearly that the well was to be a "short cut" to visit my home. Then the effects of this route were seriously discussed. The making of a hole through the earth would mean for them an enormous amount of labour, and, judging from themselves, they felt that if I had such an easy way of visiting my home I should be going very often, and then there was the labour of lowering me down and winding me up; besides, some day they might find the bucket empty, I having decided to remain at home. Altogether the labour and risk were too great, so they resolved that the well should not be dug. After talking the matter over with one of our most intelligent young natives, and promising not to go below the sea level, he succeeded in getting three others to help him to continue the work. This promise proved a great relief to public anxiety. "If," said the natives, "the missionary is really digging for water, and has promised not to go below the sea level, then the work will soon be done, and he will have got his experience, and we shall hear no more of digging holes in dry places to find water."

Week after week the work went on merrily, very merrily, indeed sometimes, I thought, as I heard the laughing and jokes, when their friends, and also strangers from a distance, paid a visit of inspection. I had measured carefully the distance we were above the sea level, and kept a daily record of the exact depth of the well, so that I knew when to expect water, if we were to get any. I watched my chance when the bottom of the well was near the sea level, and when half a dozen natives were standing with the two at the top I walked across from my study, which was so near that I could hear the conversation, and asked them if they had not found water yet. The idea of finding water was evidently amusing to them, and they seemed particularly anxious to impress upon my mind that they were not seeking water at such a place. "Tha eakune kô, ngo nyipëti pe." (Not *we*, but *you*.) Well, I said, I had better go down myself and see if I can find water. One wag hinted that that might have been done from the first with very good results. However, none of them supposed that I really intended descending the well, but I insisted upon the two men coming up. I did not trust them to lower me down standing in the bucket, as they generally did, but slipped down the rope, and at once set to work with the crowbar, digging out a small hole in the middle of the well, looking every now and then at the point to see if it was wet. While thus engaged the natives at the top were having a good time, somewhat at my expense. Questions were shouted down the well, followed by roars of laughter: "Haven't you found water yet?" "We are dying of thirst!" "Take care you don't get drowned," and so on. After a time I began to get quite excited myself, as I thought the point of the bar was wet. Soon there was no mistake: it was wet; there was water. I shouted to the natives at the top to get a pannikin from my wife, and send it down in the bucket, and I would send them up some water from the well. They, supposing that I was responding to their jokes, asked what would be the use of a small pannikin of water amongst half a dozen thirsty people, and begged me to send up a bucketful. However, as I insisted, the pannikin was obtained and lowered down. By this time the water had percolated into the small hole I dug in the middle of the well, enabling me to get half a pannikin full, which I sent to the top. The effect was instantaneous and comical. Each tasted the dirty water, and pronounced it the sweetest and best on the island. As a matter of fact, it was brackish, as we were too near the sea to get fresh water.

The news spread through the village like wildfire, and was passed from village to village with astonishing rapidity. The report was, that while their countrymen had been digging for months and could not find water, the missionary had gone down the well and found it in less than half an hour. After digging down as far as we could at the lowest tide, we had always an abundant supply, which being only slightly brackish, was used by the natives and for general purposes on the mission premises. This, I considered, had solved the problem, so that we might reasonably expect to find good water at the inland villages by digging down to the level of the sea, which was subsequently done with complete success.

Soon after this important discovery the "Day Spring" arrived from the New Hebrides, with Mr. (now Dr.) Paton and others on

board. All were greatly interested in the well-digging, and as Dr. Paton was then beginning his Aniwa Mission, I advised him to try the experiment, which he did with success. The Roman Catholic priest at Lifu, living at an inland village about a hundred feet above the sea level, also determined to dig a well, after a conversation I had with him on the subject. A French lay brother took charge of the work, which extended over a year, owing to the hardness of the coral rock, which made blasting operations necessary. During these proceedings the priest received a deputation of natives from amongst his own people which very much amused him. Their object was to induce him to try and secure my services for the well. They did not suggest, he said, that *he* might find water if he went down; but they said, "Ask the missionary to go down, he will soon find water!" I may say that they found excellent water at the sea level, which has proved a great blessing to the people of that village.

After thirteen years of happy work amongst this laughter-loving people, numbering nearly 10,000, who had all abandoned idolatry, and were to be found in our schools and churches, keen scholars and equally keen traders, I received my call to establish a mission on New Guinea, the largest and, till then, the most neglected island in the world.

I must pass over any attempt to describe the interest and excitement connected with the arrangements to begin this great work: the great meetings, the numerous volunteers, and the interesting voyage in a chartered vessel.

It would be difficult to describe our feelings as we drew near New Guinea. Here was a country really new: a land of real cannibals and genuine savages. A land of *gold*, yet where a string of beads would buy more than a nugget of the precious metal; a land of *promise*, capable of sustaining millions of people, yet the natives live on yams, bananas, cocoanuts, and sugar cane; a land of *mighty cedars* and *gigantic trees*, yet where the native houses are made of sticks and roofed with palm leaves; a land consisting of millions of acres of glorious grass, capable of fattening multitudes of cattle, and yet where neither flocks nor herds were known; a land of splendid *mountains*, magnificent *forests*, and mighty *rivers*; but to us a land of heathen darkness, cruelty, cannibalism, and death.

We were not blind to the value of the island from a commercial, scientific, or political point of view, with its vegetable and mineral treasures, and its proximity to Australia, and we felt certain that the introduction of Christianity would develop the resources of the country.

But our *primary* object was not simply to render it safe to land upon its shores, which are lined with cocoanut, banana, sago, betelnut, and other fruit trees; it was not that we might open up the interior, and render the iron-wood, ebony, canary-wood, cedar, and other valuable timber and fragrant bark and spices accessible; it was not that we might facilitate the acquisition of birds of paradise, crown pigeons, parrots, lories, kingfishers, and other beautiful birds which dwell in those dark, tangled, luxuriant forests; it was not that we might render life and property secure whilst the miner digs for coal, iron and gold, which are known to exist there; or whilst the sailor

collects from its shores the trepang, pearl, tortoiseshell and fish where these treasures abound; it was not the *treasures* of the country that we were seeking, but its *inhabitants*; and we were fully convinced that the Gospel is the best *reformer*, and the best handmaid to science, and that it is the only means of preventing the natives from being swept from the face of the earth by the great tidal wave of what we are pleased to call "human progress and civilisation."

As we drew near it was a strange sight that met our eyes. Instead of the oak, and the elm, and the beech; the majestic yews, and chest-nuts, and poplars; the apple, and pear, and plum trees of this beautiful England; there rose before us the stately palms, the wide-spreading banyan, the mango, with its abundant wood and luscious fruit; instead of our stately orchards, there were the sago, banana, and cocoanut groves; instead of our waving fields of corn, there were plantations of yams and sugarcane, melons, and papao-apples; and instead of our stone and brick houses, there were grass huts, surrounded by stockades, in the midst of rank vegetation, close by stagnant pools and deadly swamps.



Murray Island. Mission House, &c., from the Sea.

The crowd of natives on the beach also presented a strange scene. Let me try to give you some idea of a typical Papuan. Imagine a man about five feet nine inches in height (I have seen many of them over six feet), his body a dark brown colour, blackened and varnished if in mourning, but covered with red earth and oil if prepared for the dance; his face painted in different colours; a piece of polished stone, like an ivory penholder, eight inches long, through the septum of his nose; the lobe of his ear cut and drawn down by a weight, then pierced all round and decorated with beads, or carrying two large earrings, made from a shell, or two dozen small ones, made of turtle shell; the teeth black like polished ebony, or red with chewing betelnut; his hair long and frizzy, cut in fantastic shapes, or twisted into dozens of cords, and ornamented with paradise birds' plumes, cockatoc feathers, and wild flowers; in some cases his waist compressed to wasp-like proportions by a broad belt of bark, or a gaily-painted ribbon made from

the same material, with long streamers in front and behind, which, seen from a distance, would, no doubt, account for the story of men with tails; shell armlets on their arms; kneelets of coloured flax or money-shells; a small netted bag over his shoulder; a chunam pot in his hand; his bows and arrows hanging by his side, and a couple of miserably-fed dogs at his heels, and you have a fair idea of the appearance of a New Guinea native. In cannibal districts the ornaments are varied, many of them being of human bones. I need scarcely say that the women are as fond of decorating themselves as the men. Human nature is pretty much the same all the world over. In addition to a profusion of ornaments, which are mostly worn before marriage, the women are prettily tattooed; wear a coloured girdle that reaches to the knees; and judiciously leave the *tight lacing* to the men, although, like some of their fairer sisters, they think that a little *paint* improves the appearance.

These were the people to whom we were taking the message of salvation, which meant *peace, liberty, light, and progress*; salvation from bloody wars, cruel rites, heathen darkness, with its manifold horrors, and the dawn of the blessings of spiritual life.

But what would happen before the light penetrated the darkness? What labours, and prayers, and tears, and suffering, and persecution, and wars, and death, before the tribes were won for Christ! These were our thoughts then, and they have all been sadly realised. Of the *final result* we had no doubt, but how many of us, and *who*, would fall before the clubs and spears of the savages, and the fever of the country, was a painful question, as we sat in our boat and gazed upon that crowd of armed savages on the beach.

It must not be supposed that it is an easy matter to get a *footing* amongst these cannibals at first, and gain their confidence, and acquire their language, and lead them to embrace the Gospel. But the fact of its having been done over and over again, and having made, out of such material, peaceful, enlightened, self-sacrificing Christians and enthusiastic and capable evangelists, should strengthen the faith of Christian people in this country in the elevating power of Christianity, and make them more enthusiastic in missions to the heathen.

There is little difficulty in getting the *key* sentence of the language of savages when you first come in contact with them. Whether you go on shore, or whether they come off to your boat, they will be anxious to see and handle all you have got. You will hear an oft-repeated sentence, accompanied with pointing or looks, that makes you feel pretty sure they are asking "What is that?" Now, that is the very sentence you want, so you take it down phonetically; then, to test it, you hold up a cocoanut, banana, or piece of sugarcane, and repeat the sentence, which will cause great astonishment and delight. There you have your key sentence, by which you may soon get a list of words and their meanings that will amuse you six months afterwards. The real difficulty is to find out the *structure* or *grammar* of the language, which is often a work of years, but must be understood before any books can be prepared for the people.

The *confidence* of the cannibals is much more difficult to gain than their language. They are very suspicious of our settling amongst them. They never go anywhere but to plunder and kill, nor do other

tribes visit them for any other purpose, so that when we tell them that we have come for *their* benefit it only increases their suspicions. It requires time and tact, patience and perseverance, prayer and faith, to gain their confidence.

In my voyages and travels amongst the cannibals I invariably made it a rule *never to make useless journeys, and never to run unnecessary risks*. A rule of this kind is of the very last importance to a pioneer missionary. Much valuable time, and even valuable life, may be lost by its non-observance; and on one or two critical occasions, with a little judicious and harmless intimidation, I have been able, not only to visit, but establish mission stations on the Fly River in the West, and Alexander Milne Bay in the East, amongst those who were generally considered to be the most savage and warlike tribes and cannibals known in New Guinea; and it should be remembered that these two dangerous places, at the opposite ends of our mission, were considered unsafe for our mission vessel, so that I had to go there, with my native assistants, in a boat.



"Dressed for the Dance."

From the first my conviction was that it would be advisable to pursue a somewhat different plan from the one adopted in the South Seas: and every step in our mission has only strengthened that impression. Prudence suggested the formation of stations on small islands off the coast, to be used as retreats, sanatoriums, and stepping-stones to the mainland—"cities of refuge," indeed, to secure the mission against total collapse from failure at other points. With this object in view, our first station was established at Darnley Island, in Torres Straits, which has a central position in Torres Straits: it is a healthy, fertile, well-watered island, with good anchorage at all seasons of the year; it is situated opposite the mouth of the Fly River, and within a few hours' sail of that Thames of New Guinea, which is the great waterway into the interior. Subsequently I succeeded in securing this island from the Queensland Government for the headquarters of our mission, there being no suitable place in the Papuan Gulf for a central European station, except some of those islands in Torres Straits. Darnley being *en route* between Port Moresby on the New Guinea Coast and Thursday Island in Torres Straits, where the mail steamers call, appeared by far the most suitable place for the headquarters of our mission; as from our base of supplies at Thursday

Island a mission station could be visited every day right down to China Straits, thus avoiding a dangerous, protracted, and useless voyage from the east end of New Guinea to Cooktown for supplies.

Having formed a station at Darnley as a sanatorium and "city of refuge," we crossed over to the mainland and established others at Katau, Saibai, and Dauan, and then proceeded to the south-eastern peninsula at Redscar Bay, and eastward, where we found the natives lighter in colour, and their language more resembling the eastern than



Trading Canoes and
Native Weapons.

western Polynesians, which led us to request that Mr. Lawes, who was then at Savage Island, in Polynesia, should be asked to transfer his services from that island to New Guinea, and bring some native evangelists with him for work on the south-eastern peninsula; which he did, settling at Port Moresby three years afterwards, where native teachers were already at work.

In the mean time I was, at the special request of the Directors of the London Missionary Society, devoting myself to pioneer work, which led to our becoming acquainted with rivers, islands, bays, and good harbours, hitherto unknown, both in the Papuan Gulf and along the coast of the peninsula. My object was to find suitable places at which to establish mission stations. This led to exploring rivers, of which I had heard from the natives. First, the *Barter*, which I named after Miss Baxter, of Dundee, who generously provided, first the *steamer*

"Ellangowan," which enabled us to become acquainted with the coast and some of the larger rivers; then the schooner "Ellangowan," to take the place of the former, carrying native teachers, missionaries, and supplies to known places. After the Baxter, I ascended the Katau River, then the Mabidaun; but none of these led to the high land of the interior, and as our South Sea Island assistants were suffering from the malarial fever of the country, both in the Papuan Gulf and along the coast of the peninsula, and had to be frequently removed to our sanatorium in Torres Straits, I determined to seek healthy localities up the great Fly River, which then appeared, and now has proved to be, a grand waterway into the interior of New Guinea, navigable for six hundred miles. Having given a detailed account of this interesting and perilous voyage in a paper read before the Royal Geographical Society, which they, in the discussion that followed the reading of my paper by the late Dr. Mullens, pronounced to be "the best pioneer voyage of modern times," and having also referred to it in a paper read before this Society, I need not say more about it now, except to add that many years afterwards, having formed mission stations and become acquainted with the natives, I found that I was *not* the first white man who entered the Fly River, for at least one of the many shipwrecked crews in Torres Straits were taken to a village on the Fly River, and from the behaviour of the natives seemed to think that they were going to have a good time, till they could get away in some vessel passing through the Straits; but they were, after their suspicions had been allayed, all murdered, cooked, and eaten, their skulls being kept as trophies. But if I cannot claim to be the first white man who entered the Fly River, it is some satisfaction to feel that I was the first who returned from it to tell the tale of his experiences.

Failing to find populous and healthy localities up these rivers, and our mission stations on the coast suffering severely from the fatal fever of the country, I determined to try the east end of New Guinea, hoping, from the narrow and mountainous character of the peninsula, to find it more healthy. Calling at Port Moresby, I consulted with Mr. Lawes, who joined me in an expedition to China Straits. We visited many places on the coast on our way down, and made some important discoveries of harbours, lagoons, rivers, islands, and straits; amongst which may be mentioned, as likely to become most useful to commerce, a fine harbour in Hood Bay, off the town of Kerepunu; Mullen's Harbour, in Orangerie Bay; and Stacey Island, which was supposed to be, and was called, South Cape, between which and the mainland there is splendid anchorage and good fresh water for vessels.

About this time (1877) the prospects of our mission were most depressing, and had it not been for our sanatorium in Torres Straits, the whole mission might have been abandoned. My wife and I lost our youngest child; then Mr. and Mrs. Lawes lost theirs. A young medical missionary was sent from England to assist Mr. Lawes at Port Moresby, but both felt compelled to leave the place, declaring it unfit for Europeans, resigned their connection with the mission, and returned to England. Then I received a letter from our Foreign Secretary, in which he said: "The shattered New Guinea Mission rests entirely upon you, and the Directors assure you, with special earnestness, that you may rely upon them thoroughly to uphold your

hands, and to sustain your efforts to keep the mission still going. Before long you will probably have a visit from Mr. Chalmers, who has been appointed to the New Guinea Mission, and who seems anxious to get a sight of it before he comes to England on furlough."

Chalmers arrived, and with him came a new era to our mission. He brought with him from Raratonga a staff of well-qualified native



Dinner Island (Samarai), China Straits, and Native Vessels.

teachers, and we started a mission at the east end, in and about China Straits: he, with his Raratongans, at South Cape; I, with my Lifuans, at East Cape, Milne Bay, and China Straits. We made a successful beginning in this notoriously cannibal district, but soon found that fever and ague were as prevalent there as in the other branches of our mission in the west. Mrs. Chalmers, who had accompanied her

husband against the advice of doctors and friends, was the first to succumb, followed by nearly all the Raratongan teachers, until the only station occupied in that district was the one where Mr. Chalmers settled, at South Cape. We were more fortunate in the East Cape district, where I had taken the precaution to form in China Straits, as in Torres Straits, a sanatorium and "city of refuge" on Dinner Island, now the Government settlement. Mr. Chalmers returned to Port Moresby, to superintend the Raratongan teachers who had been working under Mr. Lawes, and I to Torres Straits, to look after the Lifu and Mare men. Chalmers threw himself into real pioneer work, for which he was eminently qualified, and soon established friendly relations with the tribes along the coast of the peninsula. Mr. Lawes returned from England, and took up the work again at Port Moresby, devoting himself to the quiet and more congenial work of teaching and translating. I, feeling appalled at the number of deaths amongst our South Sea Islanders, which made it evident that they were not suitable for New Guinea, and that if the work was to prosper it must be by native evangelists raised from among themselves, devoted myself to the establishment of the "Papuan Industrial School and Teachers' Seminary," which, in a few years, grew into a large, popular, and useful institution. Having given some account of it in a paper read before this society some years ago, I need only refer to it now. With teachers from this institution I established the first mission stations in the Fly River, which led to a great amount of boating in all kinds of weather, and to some rather dangerous voyages in our "Ellangowan." It was during one of these that we made a valuable discovery, viz., a fine ship passage through the north end of the Warrior Reef in Torres Straits.

During the south-eastern monsoon many vessels bound from Australia to China pass through Torres Straits, where it is well known that a large percentage have been wrecked. A slight error in reckoning, or in the chronometer, causes the captains to miss Brambles Quay; then, to avoid what looks a terribly dangerous place on the charts, they attempt to beat away from the extensive Warrior Reef, exposed to a high sea and a very dangerous lee reef, whereas they might go through a fine passage, three miles wide, with six or seven fathoms of water, and sail along the lee side of the great reef until they come into the ordinary route again; or, they will find good anchorage, as soon as they get through this splendid passage, which we have named "Missionary Passage." Bampton Island, which is near the mouth of the Fly River on the western side, is about midway between Missionary Passage and a fine harbour formed by three islands, safe at all seasons, and smooth as a mill-pond, with six fathoms of water close to the shore. It was here we began our Fly River Mission, naming the harbour "Port Spicer."

We now passed from the pioneering to the developing stage of our mission. Our staff was increased, schools were established, churches formed, Scriptures translated and books prepared, and trading with foreigners commenced, as in the South Sea Islands, where there are hundreds of thousands of pounds' worth of English, German, American, and French goods required annually, where about a hundred years ago they did not require any.

Cannibalism, war, cruelty, and heathenism generally will soon

become things of the past, as in the South Sea islands. The Wesleyans, Episcopalians, and Roman Catholics have joined in the great battle between cannibal barbarism and Christian civilisation, and there can be but one issue—"Truth must prevail." The great resources of New Guinea, like those of other countries, must be developed, and the natives must be civilised or swept out of the path of progress: this is the lesson of history; we have become too familiar with the teaching of "the survival of the fittest." Christianity demands help for the unfit, the weak, and helpless; it claims and manifests a power to "cast out" the devils of society, which Governments seem powerless to "bind"; and it is because many of us feel this to be the truest, greatest, most democratic, and most comprehensive of all reforms, that we believe that the best way to civilise a barbarous people is to *evangelise* them; that the spread of Christianity is the real development of the human race.



I have not thought it of sufficient importance to give, in this paper, any detailed account of the difficulties, dangers, troubles, disappointments, and encouragements of those first years of pioneer work. There were perils by *sea*, in open boats and small vessels: notably my first experience of a bore in the Fly River; there were perils from *savages*, who declared that they would have our skulls to ornament their houses, which led in some cases to our retreat, in others to theirs; there were perils from the *climate*, which sadly reduced our ranks; and I must sorrowfully add, perils from the evil deeds of our own countrymen when traders began their work, and the natives were still unable to distinguish between them and ourselves. Suffice it to say, that by the blessing of God upon kindness, patience, tact, perseverance, and prayer, we gained their confidence, and the mission grew in extent and power, and is being ably conducted by our successors, who are making a special feature of industrial work, which will benefit both the natives and commerce.

FERNANDO PO, WEST AFRICA.

By Mr. THOMAS J. NUNAN.

[Addressed to the Society in the Library, on Tuesday, February 9th, 1904,
at 7-30 p.m.]

THE subject which I have chosen for my paper this evening, namely, the island of Fernando Po, is one which should awaken some interest in the British public, as at one time it formed a temporary possession of Great Britain, and played a not unimportant part in the suppression of the slave trade, in which work, as you know, this country was the pioneer. The island is situated in that corner of the Gulf of Guinea, which is directly opposite and south of the Rio del Rey and of the Old Calabar river in British Nigeria. The distance between Fernando Po and the nearest point on the mainland, which is Victoria in German Kamerun, is twenty-two miles. Southern Nigeria, the most adjacent British territory, is distant about fifty miles. The island was discovered in the year 1471 by a Portuguese navigator named Fernando Po, after whom it is named. He gave it the name of *Ilha Formosa*, or "Beautiful Island," and I am sure that anyone who, like myself, has had the privilege of viewing this charming island will agree in saying that the discoverer did not err in his choice of a name. It remained practically uncolonised until 1778, when the Portuguese made some feeble attempts to utilise the place in some manner, but, after repeated failures, they finally decided to exchange Fernando Po, and also the small island of Anno Bom, for the Spanish colonies of Catalina and Sacramento in South America.

The Spaniards then took possession, but owing to the great mortality amongst the whites they abandoned the island in 1781. It remained unsettled and unclaimed by any European power until 1827, when, by virtue of a treaty with Great Britain, Spain lent it to this power to be used as a naval station to assist in suppressing the slave trade, which at that period was so rampant on the West African coast. After passing into British hands, several Sierra Leone families went and settled in Fernando Po. Many of them were freed slaves, or the descendants of slaves, and they found a welcome refuge in that little island. Their descendants are to be found there to-day, and they naturally cherish the home where their ancestors settled. The British Government appears to have fairly well utilised Fernando Po. It no doubt acted as a splendid base of operations so far as the Gulf of Guinea and the rivers flowing into it were concerned, as a glance at the map will at once demonstrate the strategic position of the island. However, in 1858, Spain reclaimed the place. England then offered to purchase it, but the Spanish Parliament did not consider the amount offered sufficient, so, finally, after some negotiation, the island was handed over to Spain the following year, in whose possession it has since remained. Our Government has been blamed for surrendering

Fernando Po, but it is well to remember that England possessed no claim whatever to the island, and in fact was bound by agreement to leave when called on to do so. It was merely lent for a specific purpose.

The island is about thirty-five miles in length and seventeen miles at its greatest breadth. I have rarely seen a more enchanting sight than that of Fernando Po as seen in the early morning from a steamer's deck. Rising like a gigantic pyramid, which culminates in a peak 10,190 feet high, heavily forested almost to its summit, every spot is covered with beautiful tropical foliage, while here and there gigantic cotton trees and the white painted houses on some cocoa plantation stand out in bold relief. The mountain chains, together with the smaller peaks, all illuminated by the rising sun, and presenting a variety of colours, make a picture which it is not easy to forget. The steamers from England generally approach the island from the west, and enable the passengers to obtain a fair view of the land before entering the harbour. The chief town is known as Santa Isabel—under British rule it was called Clarence, in honour of the Duke of Clarence, afterwards William IV. It is situated at the extreme north of the island, and possesses a small though comfortable harbour, ships being able to anchor quite close to the shore. The surf and swells which are so troublesome at other West African ports are unknown here. The harbour is in the form of a semi-circle, and is protected by two arms of cliff, of about 150 feet each in height, which run out into the harbour from the town. At the extreme end of one is a small house with a species of flagstaff, on which a light is hoisted at night, though on moonlight nights the light has been absent, the authorities thinking, and very rightly so, that the moonlight would serve a better purpose than the lantern. This house is nevertheless called by courtesy a lighthouse.

The town itself is built on a plateau some 200 feet above the sea level, and extends over a mile in the direction of the mountain. In order to reach the town from the landing place, it is necessary to ascend a road cut in the side of the hill. This road is in a chronic state of bad repair, and during the rainy season a certain amount of dexterity is required to reach the top, besides getting plentifully besprinkled with mud. The plateau on which the town is built extends inland some three miles, when the mountain ascent commences. Santa Isabel is very prettily laid out, and boasts of several fine houses. They are built of wood, with a roof of corrugated iron, which is also lined with timber to prevent the heat attracted by the iron penetrating into the apartments. A verandah generally runs all around the outside, the whole design being to admit as much light and air as possible. The houses, as a rule, stand in their own grounds, with a garden, and are detached from the others. On reaching the town from the beach a very pretty square with a tasteful garden in the centre meets the eye. A charming view can be obtained from the Marina, which is the street nearest the sea, and which is the most agreeable part for residence, on account of the breezes. It is most enjoyable in the afternoon to sit there and inhale the refreshing breezes. There is a guardship anchored in the harbour, which formerly was utilised as a prison, but this has now been abolished.

On the south-west side of the island is the town of San Carlos, boasting a bay some ten times larger than that of Santa Isabel. During the past few years it has developed into an important trading station, and the Government have latterly converted it into a port, so that it is now possible for goods to be consigned and landed there direct. All the principal firms have branches in the place, and it is rapidly growing. The principal industry of Fernando Po is cocoa planting. The best plantations are in the hands of the British, Spanish, and German firms, but some private persons also possess very good ones. Then there are innumerable holdings of but a few acres each, belonging to black traders—natives of other parts of West Africa, but who have found cocoa planting in Fernando Po more profitable than returning to their own country. These form a considerable class in the island. The cocoa-bearing season commences about August and terminates in January. The cocoa is exported to Barcelona, as it obtains a better price there than at any other market. At the present time scarcely a tenth part of the island is under cultivation. Experts consider Fernando Po cocoa of an inferior quality, but I understand that is due to the want of care in cleaning and fermenting. The general method adopted there of performing these operations is certainly a most primitive one. When the cocoa pod is broken the beans are scooped out. A quantity of white gluish matter is found to be adhering to them. This is attempted to be removed by merely rubbing with a wet rag. The beans are then put into a box, a disused canoe, or some handy receptacle, and left to ferment for three or four days, after which they are exposed to the sun for drying. Palm oil and palm kernels are also exported, but their quantity is decreasing, as people find that cocoa pays better. The imports are general European cheap goods, cottons, tobacco, powder, flint guns, and, of course, gin and rum. These latter are German and Dutch products, and after paying 100 per cent duty the cost to the trader is about 8d. per bottle of gin. Alcohol has a very good sale in the island. I must say that on the whole I did not see much drunkenness during my residence there. British enterprise is represented by three firms, who have been established for a good number of years, and who possess a good share of the trade of the place. I may say that preferential tariffs exist, and I subjoin the following table of duties:—

IMPORTS.

In Foreign Vessels.			In Spanish Vessels	
Spirits	100	% ad valorem	.....	20 % ad valorem
Gunpowder	100	"	.....	100 "
Guns.....	100	"	.....	100 "
Tobacco	50	"	.....	20 "
Manufactured Tobacco.	17	"	.....	Free
Wines	20	"	.....	Free
Beads	20	"	.....	Free
Fancy Goods	20	"	.....	Free
Silks.....	17	"	.....	Free
Readymade Goods	8	"	.....	Free
Price Goods	15	"	.....	Free

While the export duties are eight per cent ad valorem on all produce shipped in foreign vessels, it paying nothing if going in a Spanish one.

Cotton trees of 150 to 200 feet high are numerous, ebony, yellow logwood, lignum vitæ, and mahogany also exist, but are not exported, as there are practically no roads and no means of bringing these timbers to the port of shipment. The sugar cane grows wild, while a small quantity of coffee is cultivated. As to society, there is practically none. The whites go there for a few years, even less; the black aristocracy of the island is not the aboriginal Fernando Po native. It is composed of Sierra Leoneans, or the others whom I have referred to already, the descendants of the settlers under British rule. A dance is given a few times in the year, at which a combination of two drums, a fife, and a bugle furnish the music, if I may so term it. Alcoholic refreshments are very plentiful at these affairs, and in the majority of cases a fight finishes the evening's enjoyment. The rabble of the town congregate about the house, on the stairs, and even on the verandah, and freely criticise the guests. Everything is done in a slipshod manner, and at one dance where I was present a couple of dogs and a cat were in the room, and wandered at will between the dancers. Sandwiches are passed round, but are so badly made that it requires some courage to attempt eating one. The white inhabitants as a rule receive invitations to these dances. A wedding among this aristocracy is well worth beholding. The bride's dress and other accessories are generally ordered from Europe, and on the happy morning, or sometimes afternoon, the bride proceeds to church, leaning on her father's arm, or that of some gentleman friend of the family. Six or fewer little girls waddle behind holding up the train, with their feet squeezed into boots too small for them. Then follow all the black society of the town. The gentlemen wear evening dress, or a frock coat. Some of the fashions are rather antiquated, especially the silk hats, which are much in evidence. In some cases a lady friend goes before the bride waving a Spanish flag. After the religious ceremony is over the bride is paraded through the town in a hammock chair borne by four labourers. Her husband walks by the side, and the fife and drum band also forms part of the procession. The lady friends sing, throw rice and flowers at the bride, and yell out their wishes for her happiness. After the parade they all go and have a good repast, and the desire seems to be to eat and drink as much as possible. The population of Fernando Po has never been accurately numbered, but the general estimate is about 40,000, of which some 350 are Europeans, including soldiers, and at least 1,500 are natives of other parts of West Africa who have gone there as labourers for one or more years. Many of these labourers, however, on the expiration of their contract, do not return to their own country, but start little trading ventures, or obtain a few acres of land from the Government and work their way upwards. Some of the black aristocracy commenced in this manner, and to-day own good cocoa plantations.

As to food, the European is largely dependent on tinned foods. Fresh meat and vegetables are difficult to obtain except when living on a plantation. This is not because the soil is not prolific, as on the mountain sides, giving a variety of temperatures ranging between tropical at the base and European near the summit, almost anything will thrive, but because everybody is too interested in cocoa, and will

not bother about anything else. As an instance I may cite that I have eaten some very fine large potatoes and delicious tomatoes and grapes grown from European seed at one of the Catholic Mission stations, some 1,800 feet above the sea level. Fowls are brought into Santa Isabel by the natives, but fetch exorbitant prices, four shillings being asked for a fowl which would cost a shilling on a plantation. There is an abundance of pineapples, bananas, mangoes, limes, and a fair supply of oranges. Travellers who have visited tropical regions as a rule delight in giving such descriptions of the fruits indigenous to those parts that make the mouth of the untraveller reader water, and they paint the beauties of pineapples, bananas, etc., in glowing colours. Now I have tasted nearly all tropical fruits and duly appreciated them, but I assert that among them all there is nothing to be compared with our European fruits. Certainly some of the bananas resemble sweetened soap more than anything else. The grape, the apple, pear, or European orange can hold its own against them all.

Business on the plantations and in town commences about 6 a.m., and is continued up to 11 a.m. A start is again made at 1 p.m., and work for the day is generally over between 5 p.m. and 6 p.m. One of the peculiarities of Fernando Po is the absence of any definite market place, so prominent in other parts of the coast. Life in Santa Isabel is extremely dull, amusements such as golf links or a regimental band, which are found in Old Calabar for instance, being entirely lacking here. Fernando Po is plentifully supplied with streams, and the drinking water is very good. As regards climate, Fernando Po is considered healthier than other parts of West Africa. No doubt the sea breezes in some measure account for this, the great heat which is experienced in the Oil Rivers being absent, and during the rainy season the nights are comparatively cool. My own opinion is that the health of the island during the rains is through decaying vegetation but little better than other parts of West Africa. I also believe that the health of Santa Isabel is growing worse, as the population is increasing, and there is no sanitary system whatever. In my humble opinion, I think it would be of greater advantage if the Spanish Government were to introduce a sanitary system into the town instead of attending to less urgent projects which perhaps benefit a few but not the community at large. As to the preservation of health in West Africa, I am of opinion that good fresh articles of diet are quite as necessary as quinine. The latter, of course, is invaluable, and my own experience is that small doses, say 1 to 2½ grains per day, act as a good preventative. Malaria is present in Fernando Po, but the dangerous black water fever and sleeping sickness are practically nonexistent. The rainy season commences in June and lasts until the end of November. The dry season commences in December and is over by April, April and May being a combination of both.

On the northern or Santa Isabel side of the Peak is situated, about 1,800 feet above the sea level, the small village of Basile. It was founded in 1892 by some twenty Spanish families, who were sent there at Government expense with a view to colonisation. The project has been a failure. Some of the families still remain, and a few have managed to make their plantations give good results. Up to four

years ago they were in receipt of an annuity from the Spanish Government, and while this lasted the majority did not trouble themselves much about the future. The climate of this village is much more agreeable and cooler than in the lower altitudes, and fresh vegetables can be obtained there. The Governor has a residence here, which at one time was in telephonic communication with the town, and by means of which the approach of vessels could be telephoned to the inhabitants there. But some of the poles fell, the wires broke in a few places, and nobody has had sufficient energy to repair the line. A fairly good road, along the level part of which a Decanville light railway runs, connects both places. I cannot believe, at present, that it is possible to colonise any part of West Africa with Europeans. The climate will not permit it, and at this village the inhabitants have a pale anæmic countenance which speaks for itself.

The Government of the island is vested in a Governor, always a naval officer, who is responsible to a Minister in Madrid for his actions. He can make and unmake laws at will. There is a Council, composed of the higher officials, to help him, and he is also chairman of the Town Council, but I may remark that he may do what he wishes without consulting either body. At times they are called together for form's sake, but the Governor merely tells the members what his wishes are, and his resolutions are passed at once. During my residence there a certain Governor only convened the Town Council once during his stay of fourteen months. The usual term of office is two years.

I may here correct a prevailing impression with regard to Fernando Po, and that is that it is used as a place of exile for political offenders. This is incorrect. It is many years since any such people were sent there. The real Fernando Po native is known to Europeans by the name of "Boobi." He is generally supposed to be of a Bantu and not a Negroid stock. Among West African natives I believe that he is the laziest. He has practically no ambition or trading propensities, characteristics which distinguish him from the other tribes, who trade as soon as they walk, and finish only when dying. The "Boobi" is, so far as civilisation is concerned, in much the same state as a hundred years ago. He has but little contact with the white man, and is not desirous of improving the acquaintance. Very few of them accept service under a European, and the few who do have the uncomfortable habit of returning to their villages without saying a word to their master, thus often causing serious inconvenience. One may keep a Boobi servant for a few months, and flatter oneself that at last an exception to the rule has been found, but some morning or afternoon when you call and wish something done there is no answer. Your paragon has departed to attend some native festival, or because he feels tired, and will appear in the course of the following week or so. Secret societies for both sexes exist among them, but we can ascertain nothing about these. They are a most ugly-looking race, the women being perfect frights. Courage and cleanliness are unknown qualities among them. I believe that the only occasion water touches them is when they cross a river, or are caught in a shower of rain. The wardrobe of both sexes is not very extensive. The man sometimes wears a hat purchased at one of the European

shops, a strip of cloth, and a few beads. The native hats are more in vogue. They are made of plaited palm leaf, with a broad or narrow brim, and adorned with feathers. The women are similarly dressed, excepting the hat, and they decorate themselves with more beads than the men, the ankles and wrists being as a rule covered with these articles. Both sexes wear bits of wood stuck in the ears, and sometimes necklets of teeth and bits of bones. The woman, when reaching a certain age, is plastered from head to foot, including the head, with a curious species of reddish mud. This is supposed to render the skin waterproof, and causes the hair to stand out from the head in a solid circular mass. One of their customs is that through some fetish idea the women are not permitted to eat any flesh food. Although to a certain extent Spanish money is found amongst them, yet the native coinage consists of particles of a certain kind of shell. Both sexes smoke, and carry a small knife, held in place round the arm by a piece of string. This knife serves any purpose. They will wipe it on their feet or hands, and use it equally to cut their food or tobacco. Their houses are four-cornered, with wooden or bamboo walls, and a low roof of thatch. The cooking and lighting utensils are of wood, and of the most primitive pattern, palm oil is used for the lamps, and everybody sits on the floor. The dirt, however, which is everywhere prevalent, does not tempt one to linger amongst them. Soon after birth the infant is plunged into cold water. This is supposed to render them hardy. As to marriage, I may mention that polygamy is permitted. At death, the bodies are in some districts buried in the forest with the head left above ground, while in others they are buried in the ordinary manner, and a heap of stones is erected over the spot. Slavery is prevalent, but in a very mild form, and the slaves live in the same houses as their masters. As to native government, each village has its own chief, but all these obey one principal one, who at times convenes the others to discuss any important matter. These natives have no necessity to work as we understand the term. They merely cultivate a patch of ground to produce cocoa or yams, extract a few gallons of palm oil from the nut, which grows wild, and bring these articles to the trader in exchange for gin, beads, or powder, and then return to their villages, which for the most part are situated in parts very difficult of access where no one molests them. They labour just sufficient to obtain a small quantity of these articles, and generally speaking have no desire to become large traders or grow rich.

In the mountainous districts the island is well stocked with a small antelope, and these furnish any meat that the men may require. The women do the greater part of the work, and you will see three or four of them marching along with bundles on their heads, while their lord and master stalks behind, merely carrying a stick over his shoulder, from which dangle a few empty bottles. In counting the Boobi counts by fives. They are very virtuous and fairly honest, much more so than any of the other native races I have had dealings with. Offences against the moral code were formerly punished by cutting off the offender's left hand. Although this has been discontinued, still the punishment is very rigorous, consisting principally in large fines and corporal chastisement. I regret my inability to give further details

of the customs of these curious people, but the seclusion which they maintain must serve as my excuse. I may say that they are quite happy, though physically a very inferior race. At present, Fernando Po is suffering from want of labour, which naturally has a very detrimental effect on its prosperity. Formerly labourers were obtained from Sierra Leone, Lagos, and Liberia, and although some still come from the latter place, their numbers are decreasing. This is due to the non-fulfilment by the master of his portion of the contract. In most cases the offenders were black people possessing small plantations. A lower rate of wage was given them than that promised, and the labourers were not always permitted to go free on the expiration of their term. Fortunately our Government became cognisant of this state of affairs, and suppressed the recruiting of labourers in British West African colonies. I am aware, of course, that it is impossible to rule such a class by love, and I can say that I have never experienced truthfulness, honesty, or gratitude in any of them, but neither is it requisite to employ hatred or fraud. Communication with Europe is by means of the Elder Dempster steamers from Liverpool, which call every two weeks. There is a German line from Hamburg, and a Spanish steamer from Barcelona runs there every two months; but there is no cable line. A Roman Catholic and Primitive Methodist mission exists, with stations in different districts of the island, but their efforts to Christianise the Boobi has met with very little success. He prefers to jog along in his own happy old-fashioned way. At different periods it has been announced that Spain intends to sell Fernando Po, and reports to this effect are periodically appearing, qualified with the assertion that Germany will be the purchaser.

Personally, I have no doubt that eventually Fernando Po will come into the market, as it is not a profitable investment for the Spanish Treasury; and without in any way wishing to offend German susceptibilities—I merely give expression to a truth—I can conscientiously say that the inhabitants themselves absolutely abhor the idea of passing under the German flag. People I have spoken with on the subject, without expressing any desire for a change, have said, "If we must change, let us go under the English flag." Added to this, we have a clearer right to an offer than Germany; the colonisation of the island was practically started by England while it was in its possession. The alien native population are either English speaking or the descendants of English-speaking settlers, and, above all, the sympathies of the people are not with German rule. Added to this, the island's natural richness and its strategic position ought to have some weight with our Government in securing the first offer. Spain may sell to whom she pleases, but I hope that some means exist to bring this about, and then perhaps we may some day see as a small though brilliant jewel in the British crown that island where I have passed some of the happiest moments of my life.

ST. JOHN BAPTIST, CIRENCESTER, AND ITS "VICE."

By Mr. C. H. BELLAMY, F.R.G.S.

[Read to the members in the Library, on Tuesday, March 8th, 1904, by
Mr. H. C. MARTIN, F.R.G.S.]

THE ancient Roman station of Corinium, situated at the intersection of the four great roads—the Fosse Way, the Icknield, Ermine Street, and Ackman Street, lies some feet below the modern Cirencester. Almost all traces of this great military station have been swept away, but remains have been found in and around the town (including tessellated pavements of very great interest), which prove that those who came as invaders, eventually settled down peacefully and in considerable numbers. The withdrawal of the legions of Imperial Rome overwhelmed these villas in disaster, but it did not cease to be a place of human habitation, for it is casually mentioned in the times of Alfred the Great, who assigned it as an abode to Guthrum, the Dane.

It cannot be stated with any exactitude when the religious house was founded here, but it is certain that the Abbey of regular Augustinian canons, founded by Henry I. in 1133, replaced a college of secular canons. The large cruciform church of this Abbey, dedicated to the Blessed Virgin, has entirely disappeared. There can be little doubt but that to these canons is to be attributed the beauty and extent of the present parish church of St. John Baptist, and to their influence, the founding of charities within it, and the benefactions of donors who contributed to its erection. Becoming grasping, they seized upon the temporalities of the church, and with great audacity claimed the rectory, to which they had no legal right. But in 1344 Edward III. gave the Abbot Hereward a confirmation of his claim on payment of the large sum of £300. This secured to the canons the revenues of the church, and the high altar was served by one of their body; and although it is constantly spoken of as a vicarage, the right of presentation was never once exercised, but the charge was held as a perpetual curacy from the Bishop of Gloucester, until the Act of 1868 made all perpetual curates into vicars.

St. John Baptist is the largest of the old parish churches of Gloucestershire, its internal length being 157 feet, and its breadth 104 feet. Its architecture is mainly Perpendicular, although portions are Early English and Decorated. The lofty western tower, 134 feet high, in three stages, is surmounted with battlements, and the angular buttresses terminate in pinnacles. A slight settlement seems to have early manifested itself, for the tower is supported by huge flying buttresses both north and south. The nave is also surmounted by a pierced battlement, with pinnacles, which marks the latest stage of pure Perpendicular architecture. Of the figures in the western angles of the tower, that to the north represents St. John Baptist, and all round the drip-courses at the base of the battlements of the nave are carved on bosses a series of figures, some of them grotesque, which are said to represent a Whitsun-Ale, or merry making. Several of

the shields represent minstrels, some of whom are in strange attitudes and with all kinds of instruments; one shield bears the injunction "Be merrie," and amongst the other figures may be found Death with a bell and shovel, two men with daggers, a man with a sack of flour, a woman with a drinking pot, a bishop, a monk, a king, and a queen.

The interior is remarkable for the great height of the clustered columns upon which the arches of the nave rest. At the spring of the arches are figures with shields, bearing the arms of contributors to the building, ranging from 1460 to 1530. The chancel is Decorated in style. Anciently the church was rich in stained glass, for in a petition to Archbishop Laud in 1539 it is made to say: "I was founded with rich coulered glass, such as is in Fayreford Church, near me in the same diocess." What little was left in 1800 was arranged in the east window by Lysons, the antiquary.



Church House, or "Vice," St. John Baptist, Cirencester.

There are several chapels,—the Trinity Chapel retains altar steps and sedilia, and has a fresco of the martyrdom of St. Erasmus; the stone roof of St. Catherine's Chapel (1508) has good fan tracery and figures of St. Catherine and others; in the chapel of St. John Baptist there is some good glass; and in the Lady Chapel is a fine carved oak screen; there are several brasses, and among the Church plate are two Elizabethan flagons and a covered cup with the crowned falcon and sceptre badge of Anne Boleyn, bearing the date of 1535, the year before her execution. Between these chapels are several squints or hagioscopes, one of which is of very curious construction.

But perhaps the most remarkable portion of the building is the Church House, or "Vice," as it is commonly called, which really constitutes the south porch of the church. It is about the same height as the nave, and like it embattled and richly decorated. It is practically distinct from the

church, and was very ingeniously constructed so as to obscure only one window of the church. It was erected about 1500, having a crypt beneath, and two storeys of rooms, now thrown into one, above. These rooms communicate directly with the church, and there can be no reasonable doubt that they served as meeting places for the guilds or brotherhoods, of which there were at least three here. The principal was the Guild of Holy Trinity, founded in the reign of Edward III., which held two feasts annually, wore a guild dress once a year, and maintained two priests from their yearly contributions, until in 1382 they founded a perpetual charity. On the eastern side of this building formerly stood the Church-house Tavern, built up against the porch, and as the entrance to the crypt is on that side, and there is no appearance of any religious use, such as traces of an altar would afford, it seems probable that it was used as a cellar for the tavern, which apparently furnished the social gatherings of the guilds. The upper floor may have contained rooms for chantry priests, although it is known that some of these had houses in the town.

From the time of the dissolution of the guilds there would seem to have been no definite use attached to it, and it appears to have remained unoccupied. The parish records do not begin until early in the seventeenth century, but among the rents of the church lands in 1614 and 1619 are: "George Stone, for the church-house taverne in his own use, the gouldsmith of Gloucester, and a collar-maker, for standings under the church-house window," and others for "standings against the poorche." In 1639 the latter are said to be "standings at the Vice." In 1648 Walter Portlocke, the clerk, was allowed to have "the room over the church porch," and later on in the same year is an entry that he "has leave to dry clothes in the Vice until it shall be repayred for other uses." In 1656, "Walter Portlocke shall hold and lay his standing in the Vice until the churchwardens shall have occasion to use it, and to have the use of the penthouses over the Vice taverne." The repairing for other uses took place in 1671-2, Bishop Nicholson, of Gloucester, having granted permission for its conversion to public uses, and it is said "the Vice was made a Towne Hall, 1672." The double doorway to the right on entering the porch is part of the alteration then made. The two storeys of the building above still remained until 1831, when the adjoining houses having been taken down, it was found necessary to rebuild the upper portion, and then the two floors of rooms were formed into one large hall as at present.

There is considerable difference of opinion as to the meaning of the word "Vice," and the Rev. E. A. Fuller, to whose painstaking researches we and all admirers of this noble building are greatly indebted, offers several explanations. The first is that it may be a shortening of the word "*Parvise*," church porches being sometimes so called "*a parvis pueris ibi edoctis*," as formerly the priests were wont to teach children there. But as another building existed in Cirencester for this purpose, this suggested explanation is not satisfactory. Nor is the further suggestion satisfying, that it is derived from the Vice or newel staircase, by which access was gained to the upper storeys. Thus in one of the Bury St. Edmund's wills, published by the Camden Society, is the expression: "The Vys dore goying up to the candilbeem"—that is, the door of the newel staircase going up to the rood-loft. The third derivation, which appears to have been the local tradition and the most reasonable one, is mentioned by Bishop Nicholson

in his faculty. He speaks of "the noble frontispiece of the Parish Church, commonly called the Vice—that is, the device, because, as it is said, this frontispiece so greatly adorns such a magnificent prophylæum, while only darkening one window of the church." In support of this abbreviation of the word "device" we may adduce an extract from an account of the coronation of Edward VI., printed among the additions to Leland's *Collectanea*, which says: "Before him there lay a lyon of gold, which moved his head by Vices." Here the word evidently means "devices."

But whatever may be the true derivation of its name, this noble porch, probably unequalled in the country, is a most magnificent frontispiece for a remarkable church, almost hidden in a secluded Gloucestershire vale, only some two or three miles away from the head waters of the mighty Thames.

How grand this ancient edifice, that rears,
Amid the town-life bustling ever round,
Its stately fane, with sweet and pleasant sound
Of bells! How grand the embattled tower, that wears,
With changing hues, the marks of by-gone years:
Buttress and porch, and arch, with mazy round
Of curious feet, or shapes fantastic crown'd,
Tall pinnacles and mingled window-tiers,
And column-clustered nave! A fairer spot
Our England gives not to the tasteful eye,
Nor to the heart more soothing. Happy lot
Is theirs, indeed, whose dwelling-place is nigh
This sacred fane: here, by the world forgot,
In life to worship, and in death to lie!

MR. C. H. BELLAMY, F.R.G.S., AT THE POLYGLOT CLUB,
ROUBAIX.

ELI SOWERBUTTS, Esq., F.R.G.S.,
Secretary, Manchester Geographical Society,
Manchester.

DEAR SIR,—I address you once more in my rôle of a "Corresponding Member." As I have nothing else to write about for the moment, will you please forgive me writing about myself. At the request of the "Polyglot Club" of Roubaix, I gave them my lecture entitled "Westward Ho!" (a tour in Cornwall and Scilly) on Saturday evening, the 16th inst. The meeting was held in the lecture theatre of the Technical School, a room of about the same shape as the chemical theatre at Owens College, but somewhat larger, because we had an audience of about 400, and more could have got in. I believe I showed you the building when you visited us two years ago. The Polyglot Club is a kind of offshoot of the local Geographical Society, has nearly a hundred members, and holds two meetings weekly in its own rooms, the evenings being English, German, and Spanish in turn. The lecture theatre is at their disposal free of all expense, when they require it, as it is State property. It is also used by the Geographical Society. This is one of the things "they do better in France." If the State would provide you with such a lecture hall, I fancy it would materially lessen your work in respect to the new buildings.

I enclose a cutting from the local newspaper giving a report of the lecture, to which I add a free translation:—

AN ENGLISH LECTURE AT THE POLYGLOT CLUB.

A numerous audience assembled on Saturday night in the large amphitheatre of the National Technical School at Roubaix to hear an English lecture given under the auspices of the Polyglot Club. The lecturer, Mr. C. H. Bellamy, is not unknown in Roubaix, as last year we had the pleasure of listening to him and appreciating him under similar circumstances. This time the subject chosen was "Westward Ho! A Tour in Cornwall and Scilly."

After being introduced to the audience by Mr. Duhamel, the President of the Polyglot Club, Mr. Bellamy gave his lecture in an elegant style, which was a real pleasure to his hearers. Aided with beautiful electric light views, which added great interest to his subject, the lecturer showed us in succession the magnificent pure Gothic churches of Bristol and neighbourhood, the ruins of the ancient Abbey of Glastonbury, the picturesque rocks of Plymouth and St. Ives, rocks of so peculiar a shape that they seem to have been traced by human hands. Then followed several views of the Scilly Islands, so highly favoured by nature, where we saw the "Flora of the Tropics."

All this greatly attracted the admiration of the audience, and the pictures, taken from nature, animated with life the words of Mr. Bellamy, whose lecture was all too short for his appreciative hearers, terminating at a quarter to eleven o'clock. Warm applause greeted the end of this interesting lecture. The Chairman congratulated and thanked Mr. Bellamy in his name as well as that of the Polyglot Club, and hoped they would soon have the pleasure of hearing him again.

Yours faithfully,

C. H. BELLAMY.

NEW BOOK.

DUTCH SELF-TAUGHT. With Phonetic pronunciation, containing Vocabularies, Elementary Grammar, Commercial and Trading Terms. By CAPTAIN C. A. THIMM. London: E. Marlborough and Co, 1904. Price 2/-; Cloth, 2/6.

THIS valuable handbook to the Dutch language should prove useful to visitors and commercial men proposing to remain in Holland for a more or less lengthy period, as it provides the means for acquiring a knowledge of the language, including its pronunciation so far as a book can do. Some of the sounds may prove unattainable without the assistance of a native of the country. It will also be useful for those who are intending to visit our new Colonies in South Africa, and wish to get in touch with the Boers, being interested in the education, or connected with the Government of the people of those Colonies. The very full outline of the Grammar included in the book will prove helpful to all who desire to master the language.

PERSONAL IMPRESSIONS OF RUSSIAN TRAVEL.

By Mr. W. BARNES STEVENI.

[Addressed to the Society in the Coal Exchange, on Tuesday,
March 15th, 1904.]

TO the foreign visitor Russia furnishes attractions in abundance. Thus in the large towns life is characterised by a high state of civilisation, whilst in the country places still linger the manners and customs of the people living in the time of Chaucer. This marked contrast is one of the most interesting features of Russia. The townspeople are lovers of music, the drama, and reading, and of a social nature. They might be well compared to a youthful mighty giant who not yet full-grown was possessed of latent force and great possibilities. Two hundred years ago the natives belonged more to Asia than to Europe, and yet Russia had already produced many men of the first rank in almost every important rank of life. They are especially fond of Dickens, and great admirers of Shakespeare, Thackeray, and the most prominent of the latest English writers of to-day. The native writers include such men as Tolstoy, Pushkin, and Gogol. The last named is the Dickens of Russia. He is full of poetry and depths of feeling and sorrow, and those who have heard the "bitter laughter of his weeping," as Gogol called his writings, will long remember his works. There is the same story to tell in the realm of music, the country being rich especially in folk songs, which are worthy of the earnest attention of all students of the art.

After receiving his passport the foreign tourist has little difficulty in getting about the country. Politeness and courtesy towards the officials and the people generally smooth the way. The railways are mostly in the hands of the Crown, and the others which are in private hands are being bought up. The result is that passengers can travel at about one-third of the amount charged in England. The zone system has been adopted, which greatly diminishes the cost of travelling, and the catering at the various stations is admirable both as regarded the variety and quality of the food and drink and the tariff.

Shakespeare's plays are frequently performed, and these and grand opera can be enjoyed at an outlay of twopence. As to the Russian peasant, who is the backbone of the country, he is simple, ignorant, superstitious, lazy, kind-hearted, and exceedingly credulous. Divorce is practically impossible among them. Should a wife abscond, her husband can ask the police to send her back to him on foot, no matter where she happens to be. One result of this is seen in the number of deaths of husbands by poisoning. So pronounced is the prevailing religious feeling that a pilgrim can in the name of Christ travel from place to place throughout the country without a cent in his pocket, help being given to him by the people. Two generations hence the Russian peasant, at the present rate of progress, will be

a great force in the power of the world. The women often carry on the business of farming or other trade, and they make the best pilots on the big lakes. One of these latter, Captain Barbara, keeps her crew in strict order quite as well as a commander of an English war ship.

As engineers, the people have spanned Asia and Russia with railways, the Siberian line being one of the wonders of the world. Both in population and territory Russia comes next to our own empire, with the important difference that Russia comprises only one continuous place. Little more than two centuries ago the population of the Grand Duchy of Muscovy was only fourteen millions, whereas to-day Russia has a population of a hundred and thirty-seven millions. The territory comprises one-sixth of the inhabited globe, stretching in an unbroken line from the north of Sweden and Norway to the frontiers of China. Siberia in itself, without counting Russia, is twice the size of Europe. Like the rest of the empire of which it forms a part, Siberia contains almost every variety of climate, all kinds of minerals and many species of animals. The vast forests of timber, which have been only partially exploited, are said to equal two-thirds of the forest area of Europe, while the mineral wealth is the astonishment of the world.

The blame for the war with Japan should not be placed upon the shoulders either of the Russian people or the Emperor. In this instance the war party has prevailed. Probably not 80 per cent of the peasants know where Japan is, nor have they any knowledge of the people of that country. There is every reason to believe that, the war at an end, trade in Russia will probably be the greatest of any country in Europe. The country offers a splendid field for the intelligent and enterprising Englishman. English youths should learn the Russian language, and so prepare the way for a prosperous business career in connection with that remarkable country. It is the opinion of even the most antagonistic people in Russia that one day the country will be fast friends with England, for the simple reason that they are necessary to each other.

THE GREAT STOCK ROUTES OF NEW SOUTH WALES.

TRAVELLING stock enter New South Wales on the north at Wallangarra, Texas, Goondiwindi, and Mungindi. At these places they are dipped in a solution of arsenic, tar, soap, and soda. This is done to prevent the introduction of the Queensland tick. An additional precaution is afforded by a double fence along that part of the border where New South Wales adjoins the most thickly infested Queensland country. This effectually prevents the cattle of one State from forming too affectionate a friendship for those of the other, and from the interchange of pleasant bovine marks of tenderness, such as locking horns and rubbing noses. Northern stock routes also come into New South Wales at Brenda, Barrington, Hungerford, Adelaide Gates, and Wompah. As these places are situated in dry country, and as the tick mainly confines himself to the moist, rich coastlands, where a condition of tropical luxuriance obtains all the year round, the same close safeguards are not deemed necessary. What is called a crush inspection is considered sufficient, and this is made by driving the cattle in single file between two fences so built as to provide space for the passage of only one beast at a time. These precautions have been completely successful in securing the object of their establishment, and have preserved the cattle of New South Wales from

a pest which has played sad havoc with the herds of Queensland. Perhaps the longest stock route in the State follows the course of the Darling river. It comes into New South Wales at Mungindi, strikes across country to the Darling, which it accompanies on both banks, and goes out of the State and into South Australia at Chowella. It is a long road, and at times a dry road, and the white bones along its length prove that, though all the roads in Australia are free to travel, on some at least drought demands a dreadful toll. In getting a mental picture of a stock route one must not imagine that it is like any thoroughfare that carries the traffic of a settled country. Where no road bears it company it is just a virgin way, unmarked by man's hand, unfenced, and with nothing to distinguish it from the surrounding country save the pitted soil that in places has been hardened to a semblance of concrete by the pressure of passing stock. Occasionally it runs through station after station for hundreds of miles, the stock being no sooner out of one run than they are in another. It goes through hundreds of gates, and the difficulty of negotiating these with shy cattle is why unwieldy mobs are no longer a feature of the routes. As a rule, not more than two or three hundred are moved in one mob.

It is a law of the Overland that notice must be given the occupant of a run through which a route passes that on a specified date stock will be taken through his holding. This gives the occupant an opportunity of overseeing his interests, and he looks to it that the strangers do not box with his stock or loiter by the way, or spread wide beyond the legal limits of the route, and so trespass on his pastures. The man from the homestead usually regards the man-in-charge as a species of licensed invader, and the routes are full of stories of the stratagems resorted to by the man-in-charge to outwit the other when a bit of good grass or another hour's feeding was to be got by it. No man knows more of the wonderful ways of cattle than the Australian drover. He will tell you that they see things and hear things which have not any appeal to the eyes and ears of man. They know where dead men lie buried, although there should be no mound to mark a burial place. They will not camp near a native cemetery, but will move on, or trouble the night with their restlessness. Neither will they take kindly to the vicinity of a deserted stockyard where, perhaps a dozen years before, one of their kind was yarded and butchered. Perhaps they smell blood? you ask. He shakes his head; he does not know. He thinks they see things. They are superstitious—always fearful of something. Some nights they will not lie down and rest, but keep moving about all the time and lowing. If you watch them at the weird hour, when the world is said to turn on its side, when the leaves tremble, and the grasses stir, and a bird utters one cry, you will see them raise their heads, and a shiver run through them as though they knew all about it. Then, too, you never know them. After three months on the road, may be, when you think they are tame as dairy cattle, and as easily handled, they will surprise you with some wild, mad outburst. A limb breaking in their vicinity at night, or the sudden appearance of a man, will send them helter-skelter in a wild panic. It is well for you if your tent be not in their line of flight, since nothing stays their onset. To get them together after one of these rushes at night is dark work and dangerous work, and the stockman usually contents himself with riding at their flanks and keeping them massed till dawn, when the fear which possessed them passes away, and they move docilely back to camp. In the main, however, the drover's life is not a hard one. His way across the wide, silent, sunlit plains, while the stock, feeding all the time, move slowly on before him, is one for which many a toiler in close cities would gladly exchange his daily round. He has peace and plenty, and room and time for thought, and above him there are clear skies, and before him great distances.—*Manchester Guardian*.

PROCEEDINGS OF THE SOCIETY.

JANUARY 1ST TO MARCH 31st, 1904.

The 661st Meeting of the Society was held in the Coal Exchange, Market Place, on Saturday, January 9th, 1904, at 5 p.m. In the chair, Mr. J. Howard Reed, Honorary Secretary.

A large number of children and friends were present at the Victorians' Annual Children's Party.

At 5 o'clock the Victorians received the children. During the evening there were dancing, games, lantern exhibitions, songs by Miss Martin, Mr. Wm. Harper, and Mr. D. A. Little, Honorary Treasurer, and recitations and a finger dance by Mr. Little.

At 8 o'clock the Chairman read the following telegram from Miss Nora Woodhouse, of Marple Bridge, who had promised to distribute the prizes and cut the cake presented by Prof. R. W. Swallow: "Nora Woodhouse grieves that influenza prevents her keeping pleasant engagement Children's Party to-day. She sends best wishes for happy meeting."

Mr. John Snaddon moved a vote of sympathy with Miss Woodhouse in her illness, which Mr. J. H. Bentley, F.R.G.S., seconded, and it was carried unanimously.

Mr. T. W. Sowerbutts, in the absence of the Examiner (Mr. J. D. Wilde, M.A.), then read his report on the answers to the questions in geography, and Mrs. J. Howard Reed distributed the prizes awarded.

After the distribution of prizes Mrs. John Snaddon cut the cake kindly provided by Prof. R. W. Swallow, B.Sc., of Tai Yuen fu, North China, and Mrs. Harry Sowerbutts distributed carriages to the children and friends.

On the proposition of Mr. Robert Stewart a hearty vote of thanks was passed to Mrs. Reed, Mrs. Snaddon, and Mrs. H. Sowerbutts, to which the three ladies responded.

Mr. D. A. Little moved, the Secretary seconded, and it was unanimously resolved, that a hearty vote of thanks be accorded to Mr. J. D. Wilde, M.A., for kindly examining the answers to questions in geography.

The 662nd Meeting of the Society was held in the Library, on Tuesday, January 19th, 1904, at 7-30 p.m. In the chair, the Rev. John Miller.

The Rev. F. A. Rees, of Stretford, addressed the members on "A Run up the Rhine." The address was illustrated by a number of lantern slides made from photographs taken by the lecturer.

The Secretary moved and Mr. J. H. Lewis seconded a hearty vote of thanks to Mr. Rees for his interesting and valuable address, and it was carried.

The lecturer responded.

The 663rd Meeting of the Society was held in the Coal Exchange, Market Place, on Tuesday, January 26th, 1904, at 7-30 p.m. In the chair, Mr. Harry Nuttall, J.P., F.R.G.S.

The Rev. Samuel McFarlane, LL.D., honorary member of the Society, addressed the members on "A Pioneer's Experiences among the Cannibals of New Guinea." (See page 8.) The address was illustrated with specially prepared lantern slides.

Mr. F. Zimmern, Honorary Secretary, moved, the Secretary seconded, and it was resolved, that a hearty vote of thanks be given to Mr. McFarlane for his interesting and instructive address.

Mr. McFarlane responded.

The 664th Meeting of the Society was held in the Library, on Tuesday, February 9th, 1904, at 7-30 p.m. In the chair, the Secretary.

A vote of sympathy with the people of Baltimore on their great disaster was moved by Mr. John R. Smith, seconded by Mr. James Hindle, L.R.A.M., and carried.

Mr. Thomas J. Nunan addressed the members on the "Island of Fernando Po." (See page 29.) The address was illustrated with lantern slides specially prepared.

Mr. George Pearson moved and Mr. W. Booth Leech seconded a hearty vote of thanks to Mr. Nunan for his address, and it was carried.

Mr. Nunan responded.

The 665th Meeting of the Society was held in the Library, on Wednesday, February 17th, 1904, at 7-30 p.m. In the chair, Mr. John Snaddon.

Mr. J. B. Brown gave the second part of his address on "Modern Methods of Dealing with Traffic at the Port of Manchester." Mr. Brown dealt with the cotton, iron and banana trades, miscellaneous goods, and the making of the new dock. The address was illustrated by a fine set of lantern slides.

Mr. B. I. Belisha moved a hearty vote of thanks to Mr. Brown, which was seconded by Mr. J. H. Walker, and carried unanimously.

Mr. Brown responded.

The 666th Meeting of the Society was held in the Library, on Tuesday, February 23rd, 1904, at 7-30 p.m. In the chair, Mr. John R. Smith.

Mr. M. W. Thompstone addressed the Society on "The British Mercantile Marine, Past and Present." The lecture embraced a brief sketch of the history of British shipping from the earliest times; the voyages and discoveries of mariners during the 16th and 17th centuries—how these discoveries led to the formation of different lines trading with these distant countries; the introduction of steam as a means of propulsion, and a description of the vessels that now cross the ocean from port to port. Illustrated with slides, many specially prepared, and others lent by the various steamship companies, showing the different types, both past and present.

Mr. J. H. Lewis moved and Mr. B. I. Belisha seconded a hearty vote of thanks to Mr. Thompstone, and it was carried.

Mr. Thompstone responded.

The 667th Meeting of the Society was held in the Library, on Tuesday, March 1st, 1904, at 7-30 p.m. In the chair, Mr. J. H. Lewis.

Mr. H. C. Martin, F.R.G.S., a Victorian, addressed the members on the "Isle of Man: Its Beauty Spots and its Legends." The address was illustrated with a large number of lantern slides.

Mr. J. H. Lewis moved a hearty vote of thanks to Mr. Martin for his interesting address, which was seconded by Mr. Wm. Turner and carried. Mr. Martin responded.

The 668th Meeting of the Society was held in the Library, on Tuesday, March 8th, 1904, at 7-30 p.m. In the chair, Mr. H. C. Martin, F.R.G.S.

Minutes of Meetings held on December 8th and 18th, January 9th, 19th, and 26th, February 9th, 17th, and 26th, and March 1st were read and approved.

The election of the following new members was announced:—

Ordinary: Messrs. R. W. Bylands, E. W. Dann, B.A., George A. Haze, James Rowbottom, Wm. Turner, T. A. Crompton, and Geo. Walker, Rev. John Miller, Councillor J. Berry, and Senor D. Miguel Vasquez B.

Associate: Miss Katie Kay.

Honorary: M. Ch. Gauthiot, Paris, Rev. S. McFarlane, LL.D., and Rev. B. Swallow, M.D.

A large number of presentations were announced.

The Chairman read a paper on "St. John Baptist: Cirencester and its Vice." By Mr. C. H. Bellamy, F.R.G.S., Corresponding Member. (See page 37.) A lantern slide illustrating the "Vice," sent by Mr. Bellamy, was shown on the screen.

The Secretary read a communication from the Organising Committee of the VIIIth International Geographical Congress to be held in Washington in September, 1904, with regard to forming a Local Organising Committee, etc. It was proposed, seconded, and carried that the Council be recommended to have the Society affiliated to the Congress, and to leave the question of forming a Local Committee for the Council to decide.

Mr. J. H. Bentley, F.R.G.S., introduced for discussion the proposal made at the last meeting of the British Association relative to the formation by the Corresponding Societies of Local Committees to aid the Association in research and definite scientific work locally.

On the proposition of Mr. John Snaddon, it was agreed to adjourn this discussion to a future meeting.

Mr. Wm. Turner then read a paper on "A Journey to Wu Tai Shan, one of the Meccas of Buddhism." By Professor R. W. Swallow, B.Sc. (See Vol. XIX., page 173.) The paper was illustrated with lantern slides made specially from photographs sent by Mr. Swallow.

A vote of thanks to Professor Swallow, Mr. Bellamy, Mr. Bentley, Mr. Turner, and Mr. Martin was carried unanimously.

The 669th Meeting of the Society was held in the Coal Exchange, Market Place, on Tuesday, March 15th, 1904, at 7-30 p.m. In the chair, Mr. D. A. Little, Hon. Treasurer.

A vote of condolence and sympathy with Mr. J. S. Reid, Governor of of Nicholls' Hospital, his family, and the boys of the Hospital on the death of Mrs. Reid was passed.

The Secretary announced that Mrs. Harry Sowerbutts and himself had attended the funeral as representatives of the Society and the Victorians.

The Chairman also announced that he had attended the funeral service at St. Matthew's Church, Ardwick.

Mr. W. Barnes Steveni addressed the members on his "Travels in Russia, and Impressions of the Country." The address was illustrated with a large number of lantern slides, and Mr. Steveni, who has resided 25 years in Russia, dealt with the following subjects:—The growth and development of Russia—How to visit Russia—The Best Routes—The Real Cronstadt—The Forts—Father John of Cronstadt—Passport Formalities—Petersburg public buildings and sights—Peter the Great and Catherine II.: What they did for Russia—The Ministry—The Russian Army—Russia's Military Power—Railway Travelling in Russia—Stone-white Moscow: Its Churches, Monasteries, Public Baths—The Peasantry and their Superstition—Lantern views of Russian Scenery—The future of English Trade in Russia. (See page 42.)

Mr. R. C. Phillips moved and Dr. Arnold W. W. Lea seconded a vote of thanks to Mr. Steveni, and it was carried unanimously.

Mr. Steveni responded.

The 670th Meeting of the Society was held in the Library, on Tuesday, March 22nd, 1904, at 7-30 p.m. In the chair, Mr. W. E. Hoyle, M.A.

Mr. A. J. Herbertson, M.A., Ph.D., Lecturer in Regional Geography in the University of Oxford, addressed the members on the "Region Round Oxford." Mr. Herbertson illustrated his address with a number of lantern slides and maps.

Mr. J. Howard Reed moved, Mr. John McFarlane, Lecturer in Geography at Owens College, seconded, and Mr. Robert Stewart and the Secretary supported a vote of thanks to Mr. Herbertson, and it was carried unanimously.

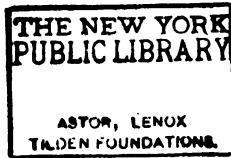
Mr. Herbertson responded.

The 671st Meeting of the Society was held in the Library, on Tuesday, March 29th, 1904, at 7-30 p.m. In the chair, the Secretary.

Mr. J. J. Cardwell addressed the Society on "The Teacher's Part in Preparation of a Course in Local Geography." The address was illustrated with a map of Manchester and Salford, specially prepared by Mr. Cardwell.

A vote of thanks to Mr. Cardwell for his very instructive address was carried unanimously.

Mr. Cardwell responded.



THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

WESTERN UGANDA*.

(*See Map.*)

By REV. A. B. FISHER, F.R.G.S. ✓

[Addressed to the Society in the Chemical Theatre, Owens College, on Wednesday, October 19th, 1904, at 7-30 p.m.]

THE part of the Uganda Protectorate which I intend to deal with in this paper is that district known as the Western Province, and includes three distinct kingdoms, viz., the kingdom of Bunyoro, with its king, Andareya Nziriga; the kingdom of Toro, with its king, Daudi Kasagama; and the kingdom of Ankole, with its king, Sulemani Kahaya. In earlier times these three kingdoms were united in or controlled by the sovereign of Bunyoro, and there is the fullest evidence of the fact that as recently as the reign of the now captive King Kabarega, the Batoro and Banyankole paid tribute to the Banyoro. The kings of Bunyoro numbered thirty-five, and it was in the reign of the ninth—King Chwa—that the Banyankole were brought under subjection. It is difficult to trace the date of the re-independence of this nation, but we find Toro remained united till the reign of Kyebambi, grandfather of Kabarega. Kyebambi gave Mwenge to one of his sons, who afterwards rebelled and ultimately succeeded in declaring Toro an independent kingdom.

In considering the ancient history of these districts under survey, we are bound to conclude that the country was well known to the earliest writers. Homer, in his map of Africa, depicts the "Mountains of the Moon"; Herodotus, in the fifth century B.C., mentions the existence of the pygmies; and Hipparchus, in 100 B.C., refers to the three inland lakes. Owing doubtless to the reverence and veneration with which the Nile was always regarded by the Egyptians, the more ardent devotees had been led to seek its source, and to thus explore these central districts. The comparative exactness with which the physical characteristics of the Nile, the Mountains of the Moon, and the lakes were described leads one to believe that this was the result of personal research rather than mere tradition. I have not the least

* We are indebted to the Royal Geographical Society for permission to print this paper with the map and the illustrations.

doubt, judging from native testimony met with on all sides, that at one time there existed a great caravan route extending along the banks of the Nile for bringing away to Egypt the African spoils of ivory and slaves. Is it unreasonable imagination to suppose that King Solomon drew his vast supplies of ivory from these directions? What other country can compete with it in its magnificent tusks, many weighing 200 lbs.? Besides this, there are many distinct traces of influences of higher civilisation, even among the crudest of the tribes living close to the mighty Ruwenzori mountain range.

In the extremely delicate and diverse forms of string and basket work peculiar to the Batoro tribe, one notices marked similarity to Egyptian design. Then, again, among the tribe of the Bahuku is another suggestive point; whilst staying in their vicinity for a period of six weeks, I made a strong effort to collect together a selection of their war-horns, which consist of minute ivory tusks shaved down and scooped out. It was not an easy matter to procure them, as they are regarded as the heirlooms of the family, and have been handed down from ancient times. Offering, however, high and tempting terms in the shape of goats, I succeeded in procuring six or seven. I then found that each had its own peculiar mark—one resembled most clearly the planet Saturn, another the Pleiades, others various hieroglyphic designs. Questioning the folk as to the significant meaning of each, they expressed total ignorance beyond that they were intended for ornamentation by their early fathers. Taking into consideration the absolute ignorance and disregard of the native mind about the celestial bodies, this, to my mind, is a most unaccountable coincidence, if it does not illustrate or emphasise the point now being dealt with.

Then as regards government. If they had not modelled it after a higher example shown them, how can we account for the intricate and highly-developed form of native administration which we found existing in these parts, and which the British Government was not able to improve upon for these people?

There remains still one other proof of an influence of an outside civilisation, and that is in the religion of the country. As among all African tribes, the belief in general is that of devil-worship. Yet after carefully questioning the Batoro, and sifting their creed down to its foundation, it is seen that they have believed in an all-good and almighty Creator who had no beginning and can know no end; they also believe in the personality of the "king of darkness," who sends his spirits to tempt men away from good, and if allowed to be thus drawn away, they will ultimately reach his kingdom, from which there is no escape. Death, they affirm, entered the world by sin, and they have a number of legends to illustrate the fact. The ritualism of their belief savours of semitic practice, viz., propitiation by offerings in kind, or the flesh of fowls, goats, sheep, oxen, which must all be white or without blemish; and human blood. When first visiting Bunyoro in 1895, the oldest inhabitants of the country related to me how a white man and woman many years ago landed on the right bank of Lake Albert, and settled in Bunyoro. On being questioned as to whether they referred to Sir Samuel and Lady Baker, they replied that they remembered them well, and described them to me. But, said they, these other white people arrived a long, long, time ago, and founded

their first dynasty. The story is that this man and his wife came down from the Nile, and caused a great sensation, the people all flocking round them, exclaiming, "Kintu ki?" ("What is it?"). So they named the man Kintu. He soon won the devotion of the Banyoro by his hunting prowess, and they made him their king. About 1892, a story, that had its origin among the tomb-keepers of a king, said to have been known as Kintu, aroused such curiosity among the intelligent Baganda that they made a search for a book, which was reported had been buried with him. Although this proved futile, the people do not discredit the story, knowing the powers of the white ants in their country to finish off anything of value. They still hold one day out of the seven as sacred, which they had been taught by Kintu.



SEMLIKI RIVER, MIDWAY BETWEEN LAKE ALBERT AND ALBERT EDWARD.

The Batoro tell of how a white man came down from the north and settled among them and reigned over them. As a proof of their statement, they will point to the sprinkling of very light brown colouring of the skin of many of their number.

The predominant and most striking physical feature of this entire district is, of course, the range of mountains known as the Mountains of the Moon. I have made very thorough investigations among the various tribes as to the possible origin of the word "Ruvenzori," and invariably found that speaking of the mountain as a whole is quite unknown to them. Each peak has its own appellation, and the nearest approaches to the word that have been given to me are "Rwensozi," which means "the mountain of mountains," and "Rwenseri," meaning "the mountain over there" (the direction referred to). It is most frequently called Birika, the only word I have heard used for "snow" among all the mountain folk. The Baganda call it "Gambalagala

fumba biri," which is "the leaf that cooks the clouds." This refers to their custom of cooking all their food in banana leaves. As the mists sweep down the mountain sides, they declare it is the smoke from the "cooking-pot."

I fully endorse Sir Harry Johnston's estimate of the approximate height of the highest peak reaching an altitude of between 20,000 to 22,000 ft. When, with Mrs. Fisher, who is the first and only lady who has reached Ruwenzori's ice, we climbed to the point which Sir Harry Johnston arrived at, I noted that my glass fell from 115° Fah. to 28° Fah., from an altitude of 5,000 ft. to 13,800 ft.

From the base to the snow-line is five days' most arduous climbing, and is attended with considerable danger. For the first 8,000 ft. one is pushing his way up the sides of forest-covered ridges, where ferns of every variety are found, from the male fern to the Australian tree-fern. Maidenhair shrubs, orchids, gigantic lobelias of two distinct species, are the prevailing plants. Bird and insect life from this point apparently ceased, and nothing broke the unutterable silence save the occasional rush of a glacier stream, or the thunder that crashed and roared from peak to peak. Camping space is very limited. On four days there was only room for one tent to be pitched in a very flabby manner under protruding rocks, and a slight deviation from the narrow path would have landed one some hundreds of feet below, for most of the time we were travelling along the top of a ridge which rose as an eye-tooth from river-beds. Beyond this altitude stretched bamboo forests, which terminated in thick morass and swamp, continually fed by waterfalls and streams flowing from the face of a precipitous rock. The unpleasant ordeal of plunging through this for some hours in the early morning, and the desperate climb up the almost perpendicular rock will not soon fade from our memory. The next day's ascent was over slippery heather trunks that had fallen across tree-tops; this brought us to a swampy valley filled with 4 to 5 inches of water and soft moss. On every side water was trickling down into it from the melting snows above. From this to the Mubuku glacier was steep climbing through loose earth covering rock, fresh-fallen snow, and over frozen puddles. We had to haul ourselves up by means of ropes over the last bare and hanging rocks, and then we were rewarded by a glorious vision of the mighty equatorial glacier, which was overpowering in its magnificence.

My conviction is that those of us who have undertaken the task have made a mistake in not attacking it from its western flanks. During a more recent stay in Mboga, when I was able to compare the position with that from the eastern side, the whole panorama of snow-peaks appeared distinctly for many days. I believe no attempt has yet been made to approach it from this side, perhaps for the reason that travellers have not made Mboga a popular field for exploration, and those few who have passed through the district may have been cheated from a view of the snows by the clouds and mists that hang so heavily on the mountain sides as a general rule. The late Sir Henry Stanley drew attention to this hazy obstacle when seeking for a reason for the silence of his predecessors on the subject of Ruwenzori's snows.

Reaching a higher point than the Mbuku glacier from the right will always be a tremendous difficulty, and one that will involve the

sacrifice of human life. Even if one's porters are chosen from the hardy mountain folk, the Bakonjo—which was the plan we adopted, and so suffered no cases of death among our caravan during those days of intense hardship and indescribable cold—we found the natives totally unfit to endure the climatic changes for any protracted period, which must be involved if a higher point than that already reached is to be attained. My conviction is that the left-hand route would be less circuitous, and would bring one in closer touch with the highest peaks.

The whole of Toro has been subjected to tremendous volcanic action. A chain of extinct volcanoes extends from north to south, and these point to a very remote period of activity; in the craters of several are to be seen lakes, and dense vegetation growing up the sides. The



PAULO TABALO, CHRISTIAN CHIEF OF MBOGA, BEYOND SEMLIKI.

people of the country have no knowledge of the true nature of these hills, tradition has suffered, like all their ancient history, from having nothing beyond verbal channels. They will tell you that these craters are the dwelling-places of the witches or evil spirits. "Kaitabaloga," which means "that which kills the witches," is the name given to them, and whenever a witch had been found, she was thrown into these craters, whence they were supposed to have come. The evil spirits are reputed to have swallowed up men and cattle; whether or no this is a contortion of the actual truth or pure legend, it is impossible to say. A tribe called Bachwezi is said to have inhabited Toro in early times, and to have suddenly and entirely disappeared, and it is a curious fact that the word used for evil spirits is "Bachwezi," and although the people do not seem to associate the *tribe* Bachwezi, as they do the evil

spirits, with these craters, one is inclined to question whether there is not here a clue to the destructive forces which must once have swept away all form of life.

On account of Ruwenzori, Toro stands pre-eminently unique as regards the water system and supply when compared with other districts. An old Arab historian named El Makrisi went so far as to declare that the four rivers Gihon, Sihon, Euphrates, and the Nile had a common origin in these mountains, which were in the region of Paradise. I can only say, from my experience of six years' life in Paradise, that the Garden of Eden must have sadly deteriorated, and there is little left beyond morasses and elephant grass of gigantic growth that would be more in keeping with the mammoth epoch.

I, however, agree with him in attributing the source of the Nile to these snow mountains. From the glaciers descend innumerable streams, which grow into wild cataracts that, tumbling down over rocks and boulders, reach the plains, and, passing through the country as clear crystal streams, empty themselves into the lakes. But in addition to this supply, the mountains attract all the rain-clouds; the force of gravitation is so great that with a mighty roar the winds from all the four quarters will, as it were, rush together, and then sweep on to the mountains, where, smashing up with a tremendous concussion, they will rebound and pour down their fury on the country of Toro. This occurs more or less for nine months out of the twelve. Bunyoro, on the other hand, offers sharp contrast; the whole district is a stretch of cone-shaped hills, occasionally relieved by a saddle-back, and contains part of that curious rift-valley called by Emin Pasha "the ribbon." This hilly condition has a deteriorating effect on the water supply. The rains begin in March, and continue till the end of May; then follows three months' dry season. The rains accumulate at the base of these hills, and are thwarted in their effort to form a channel, owing to the barrier offered by the rapid-growing vegetation. Being thus checked, the water expands, and, with the alluvial deposits washed down, settles itself into stagnant swamps, through which the earlier traveller had to wade, the natives not considering bridges essential.

The district of Bugoma in Bunyoro was until 1895 considered a dense forest extending to the Albert Lake; but during a short visit to the district, I proved by entering it that it was only a crescent-shaped belt about two miles deep, with its ends resting on the lake and nestling in a well-protected valley. It contains excellent timber, and rubber vines of an inferior quality.

I must not overlook that splendid river known as the Semliki, which unites the Albert Edward and Albert Lakes. It lies on the western side of Ruwenzori, and is in close proximity to the great Congo forest. There is no reason why this should not be utilised as a waterway for floating down the heavy timber and the quantities of rubber from the forest, which is at present untouched. With the exception of a small cataract about the middle of its course, there is nothing to check its cargo reaching the Albert Lake, where the lake steamers could take it on. The rapidity of its flow prevents silt from accumulating. If the boundary of the British and Belgian territory is yet awaiting demarcation, I would strongly urge the importance of holding the monopoly of this Central African waterway.

Observing the flat levelness of the Semliki Plain, and the ridges of hills and rocks that enclose it, one would be led to suppose that the Albert Lake once covered a much larger stretch of land; the cataract of the Semliki River, above referred to, might have marked its southern boundary, if it did not actually extend to and join up the Albert Edward Lake. The country from Busaiga to the plain is rather remarkable. On reaching Busaiga from Toro, the land suddenly drops some 500 ft., and what appears to be a vast plain extends for a distance of some 15 miles. On descending to it, however, it is found to be a slightly undulating plateau with long intercepted parallel strata of rock, which have the appearance of railway embankments. The soil is very sandy, and sprinkled with quantities of small shells such as are found on the lake shores. To reach the Semliki Plain, one has again to abruptly descend another 400 ft.



CROSSING THE MUBUKU RIVER.

The natural resources of the districts are partially or entirely undeveloped. Ankole might be called the ranchland of the Uganda Protectorate. There extends mile after mile of the richest pasture, and the cattle are exceptionally fine. They consist of the long-horned and humped species, and the cows give a particularly rich milk; the goats and sheep excel those of other districts, and are very numerous. The Batoro and Banyoro have neglected the cultivation of their country. They certainly are not epicures, and are quite content to feed on a small millet called "bura" year in and year out, as it grows with very little expenditure of toil, although it contains practically no nutritive quality. The soil is particularly rich, but the excessive waterfall in Toro, and the intense strength of the sun, have the effect of forcing

everything to exaggeration, and robbing all vegetation of the more delicate touches of nature in regard to general growth, colouring, and flavour. Almost anything planted will grow, and, the year having only one season, a constant crop of fruit, vegetables, and flowers can be obtained. In Toro strawberries can be had for nine months out of the twelve, and green peas, cauliflowers, potatoes, beans, marrows, etc., all the year round. This should be the colony for vegetarians, for while you can have fifteen different vegetables served up at one meal, as my cook has often treated me to, there is little temptation to have recourse to the tasteless chicken or the not-too-tender goat's meat.

On the slopes of Ruwenzori, tea could be most successfully grown; the coffee is of exceptionally fine flavour, and the marshy character of the country should make it valuable for rice-fields. In the Semliki Plain, which at present is one vast stretch of waste land, I have met with specimens of cotton which is much superior to other kinds produced in the Protectorate. The present hindrance to aggressive industries is the difficulty of transport. As the native is at present compelled to carry his goods a distance of 179 miles into Uganda if he wants to find a purchaser, there is little to encourage the people to work the land, beyond providing for their own needs.

The rubber industry is absolutely untouched, and in all the forests of these provinces there is a considerable quantity. The whole country must at one time have been more thickly wooded than at present. In a district where the traveller meets with a number of large shady trees, shambas are to be found, and depend upon it, if you question the oldest inhabitant as to how the trees came there, the answer will be "Twagalonda"; that is, "we selected them"—referring to the period when the district was covered with forest, and, in search of new and rich soil for their crops, they had gradually felled down superfluous trees. The fact is that isolated trees do not exist, because they have been unable to resist the annual grass fires, and even where they did manage to grow to maturity, they were then swept down by the hurricanes. The flowers have suffered in the same manner, which accounts for the marked scarcity in the country.

As regards the mineral wealth, the recent syndicate is said to have found nothing of workable value, but I cannot refrain from expressing an opinion that the river-beds, which are the tracks of the swift glacial streams, might well repay a prospector. They lie off the route taken by those who travelled through the country for this purpose.

The reason one never comes across old and well-fortified cities, as in Nigeria, is that the custom has prevailed among all the tribes of the Protectorate to change the capital with each succeeding king, and even he may change it again if the fit seizes him to move on. As all their buildings were composed of reeds and thatch, and their fences of rushes, there was no durable substance in their towns. Thus it is there remains nothing to denote the sites of their ancient capitals, beyond a few cooking-stones or slabs which had been used for grinding up their millet.

Animal life, bird life, and insect life abound in the Western Province, especially in the Semliki Valley. I have seen six specimens of antelope in the Mboga district. Elephants perambulate in herds of 50 to 150; each herd has its advance and rear guards, which sound the alarm on the approach of an enemy. Leopards and lions are numerous; the

former only trouble the inhabitants. In Toro large specimens are found; one of these I shot in that district measuring 9 ft. from the tail-tip to the nose. In quest of a specimen of the okapi, I was always met with the reply that they were such fierce creatures that capture was impossible. However, I have no doubt we shall soon procure a living specimen, and thus learn more definite information about its traits.

The district contains a heterogeneous collection of tribes, each with its distinguishing feature and customs. The Banyoro are the parent stock of the Baganda, Batoro, and the Bairu of Ankole. The Baganda appear to be the earliest offshoot, then the Bairu, and finally the Batoro in the reign of Kyebambi. The race has deteriorated owing to a virulent form of syphilis introduced by traders and Arabs, who have come down in large numbers from the Nile. Naturally, they possessed strong warlike instincts, but these have been crushed by the superiority of their near neighbours the Baganda. Mental freedom has been denied them by the predominant power of the devil priesthood. In Uganda the priests always interpreted along the line of popular opinion, but in Bunyoro they had adopted the opposite plan, which had the effect of crushing independent thought and action.

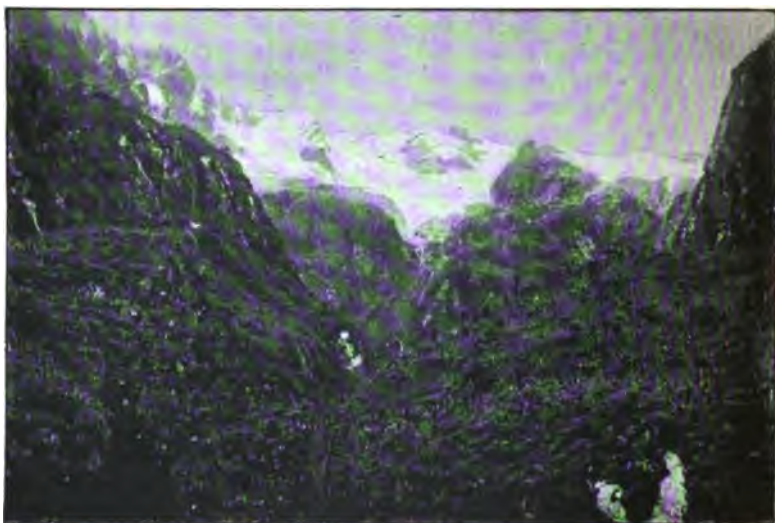
The priests alone were allowed to consult with the great devil, and that through his angels, who numbered ten—Nyabuzana, Kyomya, Kagolo, Mulindwa, Ndaura, Ebona, Mugenye, Mukasa, Lubanga, and Namutali. The angels would refuse to respond unless the priest donned the crown that was peculiar to that particular deity. The demands of their belief were fourfold—human sacrifice, branding, cutting with sharp knives, and the extraction of the teeth in the lower jaw—and these were practised on every occasion of family or community trouble or sickness. A child was once brought to me with a deep wound in her forehead, caused by the mother shooting a blunt arrow at the child's head, that she might draw the blood and relieve the pain by thus expelling the evil spirit.

The Batoro have become much influenced by the physical conditions of their adopted country, as is the case with all the tribes met with in the region of the mountains. Shut in by the great mountain barrier and lying off the caravan routes, the people have become insular and their minds cramped. The terrible demands of the ritualism of their belief, namely, cupping, which was practised from infancy and continued to old age, have seriously sapped the life of the nation, and taken from the people the power and muscular energy to master their very assertive and productive soil. The consequence is that the country is very unkempt, and they own it rules them. But being convinced does not determine them to readjust things. Then, again, the air is charged with so much electricity on account of constant thunderstorms, that this has had the effect of numbing the mental vigour and will-power of the people. If in modern warfare the bombarding of the enemy with heavy artillery is supposed to have an unnerving result on the will and crushing the spirit, so the artillery of the elements of Toro, so admirably described by Sir Harry Johnston, undoubtedly has a corresponding influence on its inhabitants.

They have, on the other hand, strong imitative instincts, which render them apt pupils. Their features are decidedly superior to the ordinary African. The negro type of feature is a rarity, and instead

one finds well-formed noses and thin lips, while the hands and feet are delicately formed except when deformed by disease, which is very prevalent in the form of syphilitic and other skin diseases, resultant on the low moral tone of the tribe. They have discovered the properties of the boiling sulphur springs for medicinal purposes, and constructed small canals to carry off the water in order that it might sufficiently cool to enable them to use it for bathing. At a time of small-pox scare in Toro, I found that the people had a method of vaccination, which they explained was peculiar to their tribe, and known only to them. The Batoro, like their neighbours the Banyoro and Banyankole, practised blood-brotherhood.

The natural inhabitants of Toro were the Bakonjo, who were driven into the mountains by their invaders. They have gradually become



VIEW OF THE MUBUKU GLACIER.

physically suited to their new mode of life. One is struck by the muscular superiority of this race. The men are the mountain hunters, and they go off on long expeditions in search of the hyrax or cony. These small creatures must be almost blind and devoid of instinct. They burrow in the rocks and live together in large communities; their captors will be at the entrance to the hole, and as one after another pops out its head, it is struck down and carried off, but, apparently possessing no means of communication between themselves, no warning is given to the others, so they continue coming out in single file, until sometimes the whole family is annihilated by these Bakonjo. The people adopt no clothing, except in some cases a few skins of the hyrax sewn together, or collobus monkey skins are worn across the shoulder. Yet they seem quite inured to the cold that sweeps down from the snows at night. They will sleep in the open with no covering

or shelter, the scanty vegetation affording no material for the erection of grass booths. Carrying wisps of lighted grass inside a sheath of bark, as night falls, they will kindle a fire and squat round in a circle with arms interlaced, and thus sleep. Unlike the Batoro, they do not build their devil temples in their courtyards, but in the forests, or wherever their most abundant spoil promises to be. I have noticed that among the people who are dependent on a particular craft for a livelihood, their religion extends to it, and not beyond. The fisherfolk round Lake Albert, for instance, will do nothing to offend the spirit, for fear of misfortune in their fishing, and practically the same idea sums up the whole belief of the Bakonjo. They live on a species of arum plant, snakes, and rats when less fortunate in their hunting. On one occasion a Mukonjo came to my house and offered to clear off the rats that had become more numerous than pleasant, and in a very short time he had replenished his larder considerably.

In Ankole two distinct tribes exist—the Bahima, or herdsmen, who are the invaders of the country, and the Bairu, the natural inhabitants and peasant class, who were given this name, meaning slave, by the Bahima. These folk are exceedingly suspicious of the Batoro, and resent any friendly overtures from them, such as have been made recently between the Batoro and the Banyoro. Their women have been kept in absolute seclusion, and are bound to cover their faces if they venture outside the boundaries of their hut, as is the custom in Mohammedan lands. This is peculiar to the Bahima, and points to the fact that the people must have migrated from northern districts. Their pronounced Nilotic features also bear this out. Doubtless they travelled down from the Nile in time of famine, and, coming across this excellent grazing land, settled down with their cattle.

On the western side of Ruwenzori are a number of tribes varying considerably in number. One of the largest is the Balega tribe, that dwells on the western shores of Lake Albert, and extends back to the Belgian territory. Their sole adornment consists of beads and wire twisted round their ankles and wrists. The chiefs will sometimes wear a cowhide. They recognise no ruling power, and have no king or leader. Each man is practically king of his own household, and, being an exceedingly prolific race and polygamy the practice, he often has a family of 80 to 100 to control. The custom is for the whole family to live together in one house, so these reach quite big dimensions, and are constantly being added to in order to hold the ever-increasing inmates. They worship evil spirits, but the women are debarred from holding any belief, or taking a share in the religious exercises.

To the south of the Balega is the Babira tribe, who practise the same customs as the Balega. The women pierce the upper lip, and insert discs of wood varying in size from a mere thorn to a piece resembling a five-shilling coin, according to the rank of the woman.

The Bahuku, who live in the forests that stretch along the Semliki Plain, are a strong and sturdy tribe. They allow their hair to grow to the shoulder, and twist it into streaks or tassels by means of goat's fat. The marriage custom is for the women to be given in exchange for another, or goats, when this is not possible. They still indulge in cannibalism among themselves. The smallest offence is the call to arms, and the scene of bloodshed is quickly cleared of its fallen warriors.

They seldom honour their dead with burial, which the upper class will always allow to their goats and sheep, but the corpses are sold for one or more goats to another family.

The Bambuba live on the fringe of the great Congo forest. They vary in height from 4 ft. to 5 ft. Their cultivation is exceedingly crude; trees are felled, and Indian corn, beans, and sweet potatoes are sown round the roots. They will not eat human flesh, except that killed in warfare. Polygamy exists among them, but each wife has her



MR. AND MRS. FISHER ON THE MUBUKU GLACIER.

own house and servants. They build their devil temples among the long grass; only the old women are allowed to visit them with their offerings besides the men, who blow a horn to acquaint their wives with the time of their offering. They bury their dead in a sitting posture, with the hands folded across the chest; for six days the head is left unburied, so that the friends might gather round and mourn over the dead. After that period the burial is completed, and the grave kept well swept until arrangements are made for the household to move elsewhere.

The Batwa or pigmy tribe are their neighbours, and are the parasites of the tribes living round. From all the information I could gather during my visit of six weeks in Mboga district of the forests, and from personal intercourse with them, I should say they are not a numerous tribe; they have suffered terribly from famine and small-pox in recent years. They do not cultivate, but live on hunting spoils and plunder. An elephant is the biggest bag, and the tusks are exchanged with the Baamba for bananas, who use them for trading, or with the Bahuku, who convert the small ones into war-horns. The difficulty of procuring a good specimen of the okapi is no doubt owing to the creature's well-nigh extinction at the hands of these spirited little hunters. The constant call for self-defence against their stronger and sometimes plundered neighbours has made them a fearful and vindictive little folk. The semi-obscurity of the forest doubtless has resulted in their stunted growth. Their bodies are covered with an almost imperceptible down, which grows on the arms in the same direction as on the monkey's—that is, it meets towards the elbows. As they always sit with arms clasped round the neck, the constant rains falling off the trees might account for this. As regards mental calibre, I should say they are much in advance of the tribes living outside the forest. It may be that, being continually on their guard against the wild animals that infest the forest, their minds have become more alert and active. Certain it is that they show a quickness for learning, and I have noticed that, while seeking to instruct a mixed class representing five different tribes, the pigmy will grasp an idea more readily and correctly than his competitors. If we are to look to him physically for Darwin's missing link, we cannot do so psychologically.

In conclusion, I would say that what forced itself on me while living among these people of the western province is that deterioration is naturally stamped everywhere, or, if we must admit evolution, it must be the evolution of evil. Whether we speak of the general features of the country, or the spiritual, mental, and physical characteristics of the people in their natural condition, demoralisation is the outstanding feature. But there are tremendous political, commercial, scientific, and psychical possibilities if we, as Britishers of the Protectorate, are willing to direct our interests in not only this western province, but Uganda as a whole.

The Uganda Railway has cost the British Government £7,000,000 to construct. What return have we got to justify this great outlay? We have, in the words of Lord Rosebery, "pegged out a claim for futurity." We are effectually able to control the headwaters of the Nile, which is the life of Egypt. The slave trade has received its death-blow, and the warships which looked after the slavers on the east coast can now be used elsewhere. The cruelties of human portage have disappeared, and inter-tribal wars have ceased. The missionaries have been able to carry on their good work in peace; thousands of the natives have become Christians, and under the present enlightened policy of our able and kindly High Commissioner, Colonel Hayes Sadler, C.B., education is encouraged and industries fostered. In short, the Uganda Protectorate is like a spring day, everything is bursting into life.

The implicit trust and confidence which the inhabitants have in Colonel Hayes Sadler and his able Deputy-Commissioner, Mr. George Wilson, C.B., have increased their loyalty to our nation, and have inclined them to settle down to the development of their country, so that we may look, in the near future, for a very large increase in the export of coffee and cotton from the Protectorate.

The Uganda Protectorate is, in my opinion, the greatest asset of our nation in all East Africa. The inhabitants are to a great extent Christian, exceedingly intelligent, progressive, and most loyal—facts which will always secure the peace, not only of the Protectorate, but also of the surrounding territory.

NEW MAP.

A GEOGRAPHICAL MAP OF CYPRUS. Compiled by C. V. BELLAMY, F.G.S. Scale, 1/348,480 or 5½ English miles to 1 inch. London: E. Stanford. 1905.

THIS map and the accompanying key are the result of observations by Mr. Bellamy during a period of five years' residence in the island. The compiler must be complimented on the careful, painstaking and apparently accurate manner in which the work has been executed, giving a clear and expressive result. The key is a valuable accompaniment to the map, and is in itself a concise Geographical and Geological Text Book of the island, and should prove very useful to all seeking information of this nature.

NEW BOOK.

LE MÉXIQUE AU DEBUT DU XX^E. SIÈCLE. Par MM. LE PRINCE ROLAND BONAPARTE, L. BOURGEOIS, J. CLARÉTIE, D'ESTOURNÈLLES, DE CONSTANT, A. DE FOVILLE, H. GOMOT, O. GRÉARD, A. HALLER, C. KRANTZ, M. LAGRAVE, L. DE LAUNAY, P. LÉROY-BEAULIEU, E. LEVASSEUR, LE GÉNÉRAL NOIX, A. PICARD, and ELISÉE RECLUS. Tomes 1 and 2. Paris: Ch. Delagrave. 1904.

THESE two bulky volumes of over 750 pages in all, illustrated with many maps, constitute an important addition to our literature relating to this country. In fact, this work is a library in itself, each section being written by a different author, a specialist on the subject of which he treats in each case, and every aspect of the present condition of the country has been dealt with in the various articles.

The book is especially interesting from a Geographical point of view, in that the first section on the Geography of Mexico is written by the well-known Geographer, S. E. Reclus, than whom no one is more fitted to undertake such a work.

All interested in the country should not fail to peruse this new addition to our Library at their earliest opportunity, as it will be a standard work on Mexico for some time to come, being so complete and by such well-known authors. The maps constitute a valuable feature of the book. There is one drawback to its use as a work of reference in the absence of an index.

THE ISLE OF MAN AND ITS BEAUTY SPOTS.

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[Addressed to the Society in the Library, on Tuesday March 1st, 1904.]

THE Isle of Man is situated in the centre of the Irish Sea, and about midway between Great Britain and Ireland. It will be seen from the following distances, between the island and the adjoining coasts, that it is easily reached from the various ports; and also that many delightful sea excursions can be arranged when the attractions of the island are exhausted.

From the island to Burrow Head, Wigtonshire, Scotland, is 16 miles; to Strangford Lough, Down, Ireland, 27; to St. Bees Head, Cumberland, England, 28; to Holyhead, Anglesey, Wales, 45; Ramsey to Whitehaven, 36; Peel to Belfast, 65; Douglas to Barrow, 59; Fleetwood, 63; Liverpool, 80; Belfast, 92; Dublin, 94; and Ardrossan, 130.

The greatest length of the island, from Spanish Head to the Point of Ayr, is $33\frac{1}{2}$ miles; its greatest breadth, from Clay Head to Contrary Head, 12 miles; and its area is 227 square miles, of which about two-thirds are under cultivation. The Calf of Man is about five miles in circumference, and covers an area of 600 acres.

A double range of hills stretches across the island, from Ramsey to the Calf of Man. These are not very high, and Snaefell—2,034 ft.—is the only point over 2,000 ft. They are, however, quite high enough to command magnificent views of the landscape, the coast-line, and the sea, and at times the coasts of England, Scotland, and Ireland.

The coast-line is indented, and forms some beautiful bays, and these are unrivalled for boating and fishing. In places the land terminates in bold rocky headlands over 300 ft. high, and, especially on the south and west coasts, presents scenery of the wildest and grandest description. The island is but small, and yet it possesses a charming variety, the attractions being so numerous that every taste may be gratified. It is a land of glens and waterfalls, affording delightful and charming retreats to the lovers of nature; and it is wonderfully rich in relics of the past, as the ruins of Peel and Rushen Abbey; the Runic stones at Braddan, Michael, and Maughold; the ancient Tynwald Hill, and Castle Rushen. The student will find ample scope for study in the glens and caves, the bays and headlands, whilst the lover of the romantic may revel in its rich store of legends and traditions.

The population of the island is about 60,000, and of this number Douglas claims one-third. In the "season" the number is greatly increased, as some 400,000 visitors make their way to the island during the year.

The principal occupations of the people are fishing and farming; but mining, shipbuilding, and net and sail making give employment to a large number of hands. The following return of minerals raised and their values was issued for 1901: Lead, £37,140; zinc, £12,818; silver, £7,341; granite, £2,240; copper, £1,467; limestone, £1,098; and slate, £774. The principal mines are at Laxey and Foxdale. Coal is said to be plentiful on the island; but it is not worked, and large quantities are imported, forming an expensive commodity to the Manx people.

The climate is mild and equable. There is an absence of extremes, and it is generally warmer in winter and cooler in summer than in the adjoining countries. It is not often they have snow or frost, and many plants requiring great care and protection in this country flourish in the open air in many parts of the island. Fuchsias of a large size and in grand condition are common in many parts.

Generally speaking, the island is formed of slaty silurian rocks, similar to those in Wales and Cumberland; and the strata are well seen along the coast, marine drive, tram and railway cuttings, and in the glens. It is found at all angles, some places quite vertical, at others contorted into curious shapes. Granite, greenstone, and other eruptive rocks have been intruded through the clay schists in places, and in and near these rich mineral veins have been found and worked. The Granite Mountain, on the eastern side of South Barrule and near the Foxdale mines, is a huge intrusion of granite, and there is another intrusion of the same mineral in the Dhoon Valley, north of Laxey.

The north part of the island, from Ramsey, is an alluvial plain covered by deposits of clay and gravel. In places there are sandhills 200 ft. high, and in other parts extensive bogs or curraghs. A fine skeleton of the extinct Irish elk was found near Ballaugh, and is to be seen in the Museum of Edinburgh University.

The Strand, north of Peel, takes its distinctive colouring from a spur of old red sandstone, and the same formation is found on the east side of Castletown Bay. Professor Boyd-Dawkins describes the Red Rocks of Peel as being formed of the sand and pebbles of an ancient ocean, cemented together by oxide of iron, silica, and carbonate of lime, and intruded bodily into the slaty rocks of the island by volcanic action. The Gobydeigan Caves, between Peel and Michael, are described as some of the most beautiful in the world.

The south coast, Langness to Spanish Head, is very indented, and the Langness Promontory, which is a mass of clay schist, has intrusions of greenstone dykes, with conglomerate in the hollows.

A bed of carboniferous limestone of great durability extends round Castletown Bay, and this in Poolvash Bay becomes black marble. From this formation the steps of St. Paul's Cathedral were obtained and presented by Bishop Wilson. Volcanic action is well marked along the coast, and both Scarlet Point and the Stack are of basalt.

The local name of the island is Ellan Vannin, or, as the Manx love to call it, Ellan Vannin Veg Veen—the dear little Isle of Man. Much of its early history is of doubtful authenticity. Its name is probably derived from the British word "mon," which means isolated; and it was originally peopled by the Manx, a tribe of the Celtic race. Being situated, as it is, between Britain and Ireland, it has been over-

run from time to time by adventurers from these countries, and has been held by the Irish, Scandinavians, Scotch, and English; and yet it is politically independent of them all, and has maintained its rights and privileges and ancient and free constitution practically unaltered.

The coat-of-arms is the three legs, and the motto, "*Quocunque Jeceris Stabit*," or, "*Whichever way you throw me, I stand*." Its origin is lost in the mists of antiquity, although several theories are offered.

All accounts agree in making the island the home of a necromancer, *Mannanin-beg-mac-y-lir*, up to the fifth century. He is said to have covered the island with a mist to keep strangers away, and those who approached the coast were made to see a hundred men for each one ready to oppose their landing.

The people were Christianised by missionaries from Ireland in the fifth or sixth century. Some contend that the bishopric was established by St. Patrick about the year 447. His name survives in places, but it is doubtful if he was ever in the island. He is also credited with having cleared the isle of venomous reptiles, as he had already done in the case of Ireland. It is said that Sodor and Man never lost the regular succession of its bishops, and seven are canonised.

The Celtic period lasted 300 years, and then came the Norseman, King Orry. He is said to have subdued the Orkneys and the Hebrides, and to have invaded the island early in the tenth century. There is a legend that he landed on a clear, starlight night, and when the natives asked him whence he came, he pointed to the Milky Way, and said, "*That is the road to my country*." He is said to have established the Tynwald Court and the House of Keys, and also to have divided the island into six sheadings or counties, which exist at the present time. Many Runic crosses scattered about the island are memorials of the Scandinavian period.

In the year 1266 the island and the Hebrides were ceded to Alexander III. of Scotland, as a result of a failure of an expedition against the Scots three years previously. In 1286 Alexander rode over a precipice and was killed. The natives then craved the protection of Edward I., and the formal submission was signed in 1290. The English control did not take the form of annexation. Edward and his successors granted the island to favourites, and these no doubt had to fight for possession. It passed through several hands, and in 1406 was given to Sir John Stanley and his heirs for ever by King Henry IV., under the title of King of Man, the only acknowledgment being the presentation of two falcons every coronation day.

In 1736 the male line failed, and the Duke of Athol—a descendant of the seventh Earl of Derby on the female side—became Lord of Man. At this time smuggling was openly carried on, and two-thirds of the population lived by it. The island was also a place of refuge for the worst kind of debtors, as debts contracted in other countries were not recoverable in Man. In 1765 the Crown induced the third Duke of Athol to give up the customs for £70,000 and an annuity of £2,000. The next Duke, and his son, who was Bishop, asserted claims to rights and titles, which gave rise to much discontent. After some trouble, the British Government acquired the remaining privileges by paying £417,114, in the year 1829. The price was an exorbitant one, but

by 1866 the surplus revenue more than repaid the sum given to the Duke. The island is administered by a Lieutenant-Governor appointed by the Crown. After an annual payment of £10,000 to the Imperial Government, the rest of the surplus revenue is available for harbour works and other local needs.

The form of Government is, in miniature, like that of Great Britain. The Governor corresponds to the King, the Council to the House of Lords, and the House of Keys to the House of Commons. The two chambers have joint as well as separate functions, and when they sit together they form the Tynwald Court. The House of Keys has been popularly elected since 1867. At one time no Act was valid until it had received the Royal assent, and had been formally promulgated in English and Manx from the Tynwald Hill. Only the titles and marginal notes are now read, and, of course, the Royal assent.

During the last century all causes between man and man were decided without expense or writing, by the Deemsters—judges selected by the people. The Deemster took a stone and marked it, and this was the authority for summonses to the witnesses and defendant. Difficult cases were referred to twelve men called the Keys of the Island. No fees were charged, and this cheap law encouraged strife, and caused many trivial disputes to be brought into court. All these primitive arrangements are now changed, and judges are appointed by the Crown, and law administered as in other parts of our country.

Home rule exists in the island, and the people seem satisfied. They have no representative vote in the Imperial Parliament, nor do Acts of Parliament apply to the Isle of Man, unless specially mentioned in them. Until 1888 poor rates and parochial taxes were unknown. There was no workhouse on the island. There was a home of industry, and the poor placed there were supported by collections in churches and voluntary subscriptions.

The Manx people are simple in their habits, and of a kindly disposition, and they are much attached to their land and its laws and customs. They are considered very superstitious, and all parts of the island are hallowed by strange legends and curious traditions. One of the proverbs of the island is—"When one poor man helps another poor man, God Himself laughs." One superstition, supposed to be a relic of Druidism, is religiously observed, and that is the placing reliance in fire as a protection against the influence of evil spirits. No family of natives will allow the fire to go out; it is always kept burning. Formerly no native would lend anything on either of the great Druidical Festivals. When a person died, a portion of earth and salt was at once placed on the corpse—the one as an emblem of the corruptibility of the body, and the other of the incorruptibility of the soul. On May Day they burned all the whin-bushes, in order to destroy the witches and evil fairies, which they believed took refuge there. At this season, too, old and young gathered particular herbs, and planted them at their doors in order to prevent the entrance of witches; and each night a vessel of clean water was placed outside their buildings to prevent mischievous fairies from molesting them and their stock during the night. Several of the glens and mountains, the ruins of Peel, St. Trinian's Church, Castle Rushen, Rushen Abbey, etc., are surrounded by traditions and legendary lore;

and these provide interesting reading, but are better appreciated when heard from some of the loquacious drivers or guides on the spot.

There are several routes by which the island may be reached, and each has its own peculiar attractions and advantages. The Barrow route is the shortest sea passage, and the railway journey passes through a portion of the Lake District, and so gives an opportunity to visit Furness Abbey and the Lakes. The Fleetwood route is only four miles longer, and tourists have the privilege of visiting breezy Blackpool, with its unrivalled places of amusement and grand sea. Those passing through the port of Liverpool have the city and its wonderful docks to engage their attention, and also a more frequent service.

As we enter Douglas Bay, the lighthouse is on the left. It was built in 1833, and stands 80 ft. high. Its revolving white light—giving six flashes and six blanks per minute—can be seen 16 miles away. It is a grand sight to visit this spot on a stormy day, and watch the great angry waves dashing over the wild rugged rocks below, especially at full tide. Visitors are allowed in the lighthouse at certain times during the week.

The Tower of Refuge is seen on the right as we enter the bay, and is built on St. Mary's Isle, or Conister Rock. It was erected in 1834, through the exertions of Lady Hillary, for the purpose of providing shelter and safety in case of shipwreck. The doors are always open, and from the top a very fine view of the town and bay may be obtained. The Tower makes a pretty picture, and adds an additional charm to one of the loveliest of scenes. Sir William Hillary, it may be said, was the founder of the Royal National Lifeboat Association.

Douglas is the chief town in the island, and is situated on the south-east coast. It is probable that the name is derived from the two rivers, the Dhoo and the Glass—Black and Grey—which unite just before entering the harbour. Another reason assigned is the appointment of William, seventh Earl of Douglas, who is said to have been the Governor in the year 1300.

At the beginning of the 18th century Douglas was only a small fishing village, but at the end of it the town had some 900 houses. The building of the Victoria and Battery Piers—both handsome structures, and costing about £100,000 each—caused the town to rapidly develop as a health and pleasure resort, and there is now a population of some 20,000. The bay is noted for its great beauty. It is semi-circular, and stretches from Douglas Head to Banks Howe, nearly three miles, and is sheltered from all the winds but the south-east. The promenade stretches from end to end, and consists of a magnificent row of hotels, boarding houses, and places of amusement.

There are several fine walks out of Douglas, but the favourite is the beautifully shaded walk through the Nunnery Grounds, and on to Kirk Braddan. The Nunnery was formerly a priory dedicated to St. Bridget, but only a small portion remains, and this is not open to the public. Tradition says St. Bridget came to the Isle of Man to receive the veil from St. Maughold, and that she lived and died at the Nunnery. Her body was translated to Downpatrick, and laid beside the remains of St. Patrick and St. Columba. A Jesuit church

at Lisbon claims to have possession of her head. It is said that Robert Bruce, King of Scotland, spent a night here in 1313.

Several sculptured stones of great antiquity are to be seen at Kirk Braddan; near the sundial there are three Runic crosses. These are covered with animals and fishes, and bear inscriptions in the Scandinavian language. The carving on one is said to read: "Thorlaf Neaki erected this cross to Fiach his son, the nephew of Eabr." The church is no longer used for service, as a new one has been built close by; but services are still held in the old churchyard during the season, and often several thousands are present.

The village of Onchan, with its whitewashed cottages and fine church, is another pleasant walk. There are several Scandinavian memorials in the churchyard, and the Government House (the residence of the Governor) is only a short walk from the village. Some fine views of the bay are obtained on the way.

On our way to Castletown, we stop at the ancient village of Ballasalla, and inspect the once famous Abbey of Rushen, the resting-place of kings, bishops, abbots, and other holy men. It is situated near the Silverburn River, and occupies a very charming situation. The Abbey was founded by Olave I., who gave a portion of land to the Abbot of Furness in the year 1134. It was an important institution, and the abbots were barons of the isle, and held courts in their own right. Little of the old monastery now remains, except parts of the tower and east end of the chapel. It existed 315 years, and was dissolved in 1553, being noted as the last dissolved monastery in the British Isles. At present the grounds, which are extensive, are used as a pleasure resort.

The Crossack, or Monks' Bridge, is just above the Abbey, and is in a good state of preservation. It is very narrow, and spans the Silverburn River in two arches with Gothic heads.

A short walk from Ballasalla takes us to Derby Haven, and the little isle of St. Michael, Fort Island. It is connected with the mainland by a narrow causeway, and must have been an important place at one time, as it has a large graveyard and a church in ruins. The church is 31 ft. long and 14 ft. wide, the doorway being 6 ft. by 2 ft. 4 in. This and the east window have semicircular heads formed of the stones of the neighbourhood, which are set edgewise round the arches. There is the foundation of an altar under the east window, and, at the north corner, three steps, which probably led up to or served as a pulpit. The old fort was built by the seventh Earl of Derby, as a protection to the harbour of Ronaldsway. Over the door, an oblong stone bears a coronet and the date 1650. The "Derby" had its origin here, the first race being run in 1627. The wonderfully water-worn rocks on Langness are worth notice.

King William's College is the most important educational institution on the island. The foundation-stone was laid by Governor Smelt, in April, 1830, and the College was opened in August, 1833. It has accommodation for about 100 boarders, and there are twenty scholarships ranging from £10 to £40, and six exhibitions to the Universities.

The ruin near the entrance to the College is called Hango Hill, or Mount Strange. It used to be a State prison, and is noted as the place where William Christian (Iliam Dhone) was shot, in 1663, for

having surrendered the island to the Parliamentary forces some ten years previously. The Countess of Derby never forgave him, and after the Restoration brought about his death. A pardon was said to have been forwarded, but was kept back by his enemies until after the execution.

Castletown is the capital of the island, and was until lately the seat of the Manx Government. The town is very ancient, and was probably of importance in the Roman period. The streets are narrow and winding, and most of the houses are built of grey stone. In the Market Square there is a tall Doric column erected to the memory of Governor Smelt, who died in 1832, after 28 years as Governor. A remarkable sundial is close by, and is considered one of the curiosities of the island. It is a solid stone ball, with 13 dial faces, and is said to tell the time by moonlight as well as by sunlight.

The principal attraction of the town is its noble castle. Tradition says that Castle Rushen was built by the Danish prince, Gutred, son of King Orry, in 960. There is, however, nothing in its architecture to show so early a date. It is built of the crystalline limestone of the district, and is a noble specimen of fortification, resembling the Castle of Elsinore, in Denmark. The walls vary in thickness from 7 ft. to 12 ft., and its highest tower is 80 ft. Visitors are admitted, and allowed to ascend the tower, from the top of which a fine and extensive view is obtained. The clock in the tower was presented by Queen Elizabeth in 1597. It is of simple construction, but keeps good time. The bell was presented by James, tenth Earl of Derby, in 1792. The moat was filled up, and a glacis erected, it is said, by Cardinal Wolsey, when he was guardian to Edward, sixth Earl of Derby. The castle held out for six months against a strong force under Robert Bruce, King of Scotland, in 1313; and it was in this castle that the Countess of Derby was imprisoned when the island was surrounded by Cromwell's forces.

The castle was at one time the residence of the Kings of Man. Later it was converted into a prison, and was used as such until 1891. Strange stories are told of dungeons into which prisoners were lowered by ropes, and of long and secret passages leading to Rushen Abbey.

A short walk along the coast brings us to Port St. Mary. This is a very picturesque and ancient fishing village, but, like other parts of the island, is rapidly developing into a health and pleasure resort. The whole district is full of points of interest, and the coast scenery is the finest on the island. There are some delightful walks in the district. The Chasms are a very remarkable series of fissures in the rocky headland, varying in width and depth. Some are very deep, and allow of a descent to the shore. This remarkable result has been caused by a landslip, through the action of the sea on the cliffs. The Sugar Loaf Rock is seen on the left, when standing on the Chasms, and although 100 ft. high, looks small, as it is some 300 ft. below.

A walk southward from the Chasms leads to Black Head and Spanish Head, so named from a tradition that a vessel of the Spanish Armada was wrecked there. The rock scenery round this part of the island is very grand. Across the Sound we have a view of the Calf of Man, and, beyond, the Chickens' Lighthouse. Kitterland—a small island—is in the Sound. Excursions are now run from Port St. Mary

and Port Erin to the Calf, and this promises to be one of the trips of this part of the island, as the coast scenery is so fine and the Calf offers several new attractions.

The ancient village of Cregneash is soon reached by climbing the hill. It is the most southerly village in Man, and is very unique. The people are mostly fishers and farmers, and until lately only spoke the Manx language. It is said they seldom went outside the village for husband or wife. Some of the scenes in "*The Deemster*," by Hall Caine, are laid here.

Port Erin, close by, is considered by many the most charming spot in the Isle of Man. The coast scenery is grand, and there are some pleasant walks, whilst the facilities for boating, fishing, and bathing are of the best. The bay runs inland, between high headlands, for nearly a mile. Only a few years back Port Erin was a mere fishing village, with a few small and irregular cottages; but now it is becoming a very important resort, and has many admirers, who prefer it to any other part. The breakwater was intended to extend 950 ft. and form a protection for boats in stormy weather. It is composed of over a million tons of large stones, and about 2,500 large concrete blocks, weighing from 14 to 17 tons. During the storm of 1884 it was thrown into its present condition, and is neither of use nor ornament, although some thousands of pounds were spent on the work. On the opposite side of the bay is Bradda Head, on the top of which stands the Milner Tower, erected in acknowledgment of William Milner's charities to the poor of Port Erin. The bold headland rises to a height of 500 ft., and the face shows strata contorted into all shapes, and coloured variously by oxides of metals with which it abounds. It is a delightful spot to rest in, and a fine view of coast and district is obtained. A short walk over the headland brings us to Fleshwick Bay. All along the coast there are numerous caves, the Fleshwick Cave being very fine, and worth a visit.

The next place of interest, passing over the mountain towards Peel, is Glen Maye, and this is one of the most charming spots; but, as it is some distance from St. John's Station, and out of the general route of excursions, it is not so much visited. The best view is from the lower bridge, where the scene is very lovely. The water has cut a deep gorge for itself, and the rock faces are covered with moss, ferns, and creepers. The first fall is about 40 ft.; the second is not so high, but very pretty.

Our next stopping-place is Peel—at one time called Holme Town—the port of the island. It is very ancient, although little remains to show its antiquity except the ruins on St. Patrick's Isle. Most of the streets are narrow and crooked, the houses in parts being irregularly built, small, and poor. But here, as in other parts, the people are entering into competition with Douglas, and making an effort to profit by the physical advantages and attractions of the place. The district is mountainous, and the coast scenery is remarkably fine, whilst the Gobydiegan caves are considered amongst the finest in the world.

Peel is the most important fishing town on the island, and has a fine fleet of fishing boats varying from 40 to 50 tons, and employing over 1,000 men and boys. Shipbuilding and net and sail making also

give employment to a number of hands. The large and well-sheltered harbour is capable of holding the whole fishing fleet of the island. On Horse Hill, or Peel Hill, there is a monument called Corrin's Tower, and also a signal station. The views are very fine from the top, but the principal attraction is St. Patrick's Isle, joined now to the mainland by a modern quay. The entrance to the castle may be reached by ferry, or by road, crossing the bridge at the head of the harbour near the station. A flight of steps cut in the solid rock leads up to a narrow entrance in an oak door of great age. Near the portcullis is the guardroom, in connection with which we have the legend of the Moddey Dhoo, referred to by Sir Walter Scott as the spectre hound of Man.

As soon as we enter the yard we have a fine view of the town and harbour; and inside we see the Round Tower, St. Patrick's Cathedral, St. Germain's Cathedral, and the remains of other buildings, the age and use of which are doubtful. The whole is surrounded by an embattled wall 4 ft. thick, attributed to the seventh Earl of Derby, 1593. These ruins are undoubtedly the most interesting of all the antiquities of the island. The Church of St. Patrick was built about the end of the fourth century, and is of peculiar construction, the stones in parts being laid at angles to each other in what is called herring-bone fashion. The Round Tower close by is a fine specimen of edifice, provided here, as elsewhere, for the double purpose of belfry and keep, or a place of strength for the protection of valuables; and also for a place of safety in case of sudden attack. The door is 7 ft. above the ground, and the four windows, at the top, face the cardinal points. This tower differs from the round towers of Ireland in some points, as the height, the shape, and the battlemented top.

St. Germain's Cathedral was commenced by Bishop Simon in 1226, on the site of a more ancient church. The choir is the oldest part. In style it is an admixture of Early English and Norman. The battlemented character of the centre tower, with its north and south transepts, is very remarkable, as presenting a combination of military and ecclesiastical purposes in the same building, making it a cathedral and a fortress. The interior brings out the fine arches of the transept and the east windows. On the north side of the chancel were found the bones of the founder, Bishop Simon, and they were placed in a niche in the wall near by. In the chancel wall there is an entrance to a crypt 34 ft. by 16 ft. In this wretched room Eleanor, Duchess of Gloucester, spent 11 years, being suspected of combining with others to compass the death of Henry VI. by witchcraft.

Two and a half miles from Peel we have the world-famed Tynwald Hill, the most interesting of all the national monuments of the Manx people, situated quite close to St. John's Station. The mound is said to be formed of earth from each of the 17 parishes. It is in four terraces, about 3 ft. above each other. The steps are opposite the church. The name Tynwald, originally Thing-vollr, comes from "thing," the place of convention, a court of justice, or a popular assembly; and "vollr," a field or vale; or the Danish vold, a bank or rampart. In the ancient Scandinavian "Thing," all the freemen had a right to attend, and, probably in order to accommodate the number, it was held in the open air.

The ceremony of promulgating the laws made during the year takes place on the 5th of July, when the Tynwald joint session of the Legislative Council and the House of Keys assemble on the Hill. Formerly the whole Acts were read in English and Manx, but now only the titles, marginal notes, and the Royal assent are read. It is made the occasion of a holiday, and large numbers go to witness the interesting ceremony. Greeba Castle, the residence of Hall Caine, and the ruins of St. Trinion's Church are near, and there are delightful walks in the neighbourhood.

A short walk of about two miles, through the picturesque Glen Moar, brings us to the noted Glen Helen, one of the most popular resorts. The walk through the woods is very fine, the hills on both sides of the river being one mass of waving foliage of varied shades, and through which we occasionally see a bright streamlet leaping from rock to rock down the steep sides. There are several miles of walks through the glen, and the scenery is ever changing; but the most delightful spot is the Rhenass or Glen Helen Fall, about a mile from the entrance. There are three falls, and, although not very high, they form a pretty picture. A short climb leads to the top of the fall, from which point there is a fine view.

Four miles from Glen Helen is the village of Kirk Michael, and a convenient point for visiting the Gobydiegan caves. The church is one of the largest on the island, and the churchyard contains some interesting Runic monuments. One of the best is opposite the main entrance, and contains sculptured figures representing a stag hunt, and an inscription, which reads, "Joalf, son of Thorolf the Red, erected this cross to his mother, Frida."

The next point of interest is Sulby Glen. This is the most extensive glen on the island, and is a charming spot, the natural gateway being formed by precipitous mountains on either side. The river running through the glen enters Ramsey Bay, and is noted for salmon and sea trout. In this glen and the district on to Ramsey are laid the scenes of Hall Caine's "*Manxman*."

Ramsey is the second town of importance, and is well adapted as a resort for health and pleasure. The district is unsurpassed in the island for natural attractions. The bay, the finest on the coast, is seven miles across, and affords good anchorage for all kinds of vessels; and is safe for boating, as there are no currents. Boating may also be enjoyed on the lake in the park. There are also tennis courts and other attractions. The district abounds in lovely walks, and many of the spots are almost beyond praise. Glen Aldin is noted as the scene of the love affair of Phynodderree and Kitty. North Barrule and Ballure should be visited. The Albert Tower was erected on the spot where the Prince Consort stood to view Ramsey when he visited the town in 1847. The view from the top is very fine, embracing all the northern part of the island.

Kirk Maughold—3½ miles from Ramsey—is worth a visit, on account of its pretty situation and the antiquities with which the place abounds. The graveyard is very large, and contains a large number of Runic stones and ancient monuments. At the entrance to the churchyard stands St. Maughold's Cross, which is very

elaborately carved with religious emblems. In this it differs from any of the crosses of Scandinavian origin.

Ballaglass Glen is a deep, rocky ravine, the sides rising steeply to a good height above the river. These are thickly clothed with trees, and provide a delightful retreat and a grateful shade in the hot weather. The fall is a series of cascades, and forms a very pretty picture.

Dhoon Glen is $6\frac{1}{2}$ miles from Ramsey. It is one of the most famous of Manx glens, and its fame is justified by its beauty. The fall is the largest on the island, and is about 180 ft. The river, on leaving the glen, runs between two high rocks, and is lost in the sea. It is a delightful place to spend a half-day.

The next place is Laxey, with its great wheel and mines. The Laxey Wheel—the Lady Isabella—is 72 ft. 6 in. in diameter, and 6 ft. broad. It was built in 1854, for the purpose of pumping water from the mines. It will raise 250 gallons a minute from a depth of 1,800 ft. The water to work the wheel is obtained from the mountains, and ascends through the tower. A winding staircase leads to the top, from which point a good view is obtained. The mines give employment to many hands, and some very fine specimens of lead ore are often found. The town is surrounded by hills, and has a small bay. The tram station presents a pretty picture, and is a busy place in summer. From this point the electric cars leave for Snaefell, and all should ascend this monarch of Manx mountains, if fine, as the view from the top is the grandest in the island, if not in the British Isles. The glen, too, is attractive; and about half a mile away is a cairn called King Orry's Grave.

Two miles from Laxey we have the pretty glen of Garwick. There are some pleasant walks and curious caves here, and these are at times illuminated in order to add to the attractions.

Groudle Glen is the next stopping-place, and only three miles from Douglas. It would be difficult to find a more charming spot to spend a few hours in. The glen is well wooded, and the banks are a mass of ferns and beautiful wild flowers, whilst the stream forms a succession of cascades. In this glen there is a miniature cañon, said to be the only one in the British Isles, called Lhen Coan, and this is very interesting, besides presenting some fine scenery. A small railway—the smallest in the world—runs down to the sea lions and the bear pits on the coast. There are some fine walks in the grounds, and the coast is high and rocky.

On arriving in Douglas, we have made a good tour of the island. More time might with advantage be spent in Ramsey and the north part of the island; and there are many other spots that are quite as attractive as some we have visited. Injebreck is a delightful out for an afternoon. It is situated about the centre of the island, and right amongst the mountains. The Douglas Waterworks are here, and it would be difficult to find a better spot.

THE TEACHER'S PART IN THE PREPARATION OF A COURSE OF LOCAL GEOGRAPHY.

By JOHN J. CARDWELL.

[Addressed to the Society in the Library on Tuesday, March 29th, 1904,
at 7-30 p.m.]

MANCHESTER AND SALFORD.*

IN reading through the Syllabus of Instruction recently issued by the Royal Geographical Society, perhaps the most striking feature is the importance attached to a study of the local geographical conditions—to a thorough grasp of the features surrounding the pupil's own home, whether that home be in the town or in the country, before proceeding further afield.

The highest importance is rightly attached to a preliminary study of the local geographical conditions, for two very good reasons:—

In the first place it emphasises the fact that geography is no longer a mere memory subject, but in its natural aspects is also an observational study, and one capable of affording much mental development to the pupils in reasoning out the relationship of cause and effect which frequently arise.

In the second place it is a clear recognition of the fact that geography, to be effectively taught, must proceed on the lines of contrast and comparison—contrasting and comparing the unknown which the pupil is never likely to see, but only to hear and read about—with the known, which he can clearly see, grasp, and mentally comprehend.

And we are encouraged to take the course of local geography first, because, whether the teacher be dealing with the town or with the country, the world, throughout the temperate and industrial zone, at any rate, is very much a replica of our own home, and for the rest it is, as I have said, easily understood on the principles of contrast and comparison.

It may appear a small and easy matter to describe the geography of one's own district, but the difficulties are such as only one who has tried to prepare a course of local geography can fully appreciate.

At the outset it must be clearly understood that any preparation of a course of local geography entails a good deal of hard work on the part of the teacher, not mere reading of guide books, sitting comfortably in one's study at home, but actual travelling out and about the area to be dealt with in class. In fact the teacher ought to be so very familiar with the details of the district as not only to be able accurately to describe his own experiences, but also to be able to deduce from his pupils living in the district their observations and inferences, and to utilise to the fullest extent the information at their command, whether obtained in their walks to and from school or in moving about the district in the ordinary avocations of the day. Of course some will say all this is nature study under a

* Illustrated by a map, specially constructed on the Black Board for the purpose.

new name, and so it is if nature study is not rather Practical Geography carried out in rural districts; whereas our study includes town as well as country.

In the course of his preparation the teacher would, in the first instance, traverse the district in every direction—on foot, by tram and train, and on the cycle—seeing what there was to be seen on the surface, and possibly nothing more, except it be, to read into his new experiences the result of other observations made elsewhere, for each district will be found to differ somewhat in detail, and possibly require different treatment in the working up of its geography. Thus Birkenhead would differ from Bolton, Blackburn or Blackpool; Liverpool from Leeds or London; Manchester from Middlesbrough or Merthyr Tydvil.

But wheresoever the district be, whether the pupil lives in the town or in the country, the first thing is to teach him to read and understand the meaning of the several lines which make up the map, plan, or chart of the district. For on his ability to do this will largely depend his future progress when he comes to study countries, which he cannot see but only read about, and the several and varying features of which he can fully realise only from a study of the map, assisted by the textbook. From this last remark it will be seen that we are reversing the old order of things in which the textbook was the be-all and end-all in the teaching of geography, and the map nowhere.

In my own case, when preparing a course of local geography—physical, political, historical, or commercial—whether for beginners or for advanced students, my first care was to do exactly as I have said—that is, to travel over the district to be dealt with, not merely the highways but also the byways, in which are situated the warehouses, works and workshops, mills and manufactories, with the homes of the industrial or artisan population.

Having done this, map in hand, I was in a position to read and understand the guide books, local histories, and other sources of information in which one might expect to find some explanation of many things, difficult to understand, except on historical grounds, and so not easy to clear up to the students without such reading.

Such a careful inquiry and travel out and about the homes of the pupils not only enables the teacher to deduce by question and answer much valuable information from the students themselves, but also enables him to make valuable suggestions as to additional things to be seen by the way, and so to help on the observational powers of the pupils when next they go in that direction, either in excursions, on their own account, or in a body as a class.

As an illustration of my method of preparing a course of local geography, let us take an Urban District—say, the twin towns of Manchester and Salford, with a particular study of the city or business centre, including its map or plan, as seen on the blackboard before us.

The structure looks a curious affair with its circles and compass direction lines, as well as other lines—blue lines, green lines, white lines, and red lines, with in some cases similarly coloured areas. The blue lines represent the position and direction of the rivers Irwell, Irk, and Medlock, the green lines indicate canals, the white lines streets, whilst the red lines represent railways, with the several areas occupied by their passenger and goods stations. The use and importance of the distance circles and the compass direction lines will appear later.

READING THE MAP—THE RIVERS.

When the pupil is informed that the winding blue lines on the map represent the rivers of his own district he will easily understand the difference between a map or plan, and a picture of the country, or the actual object itself.

Selecting as the main stream the Irwell, which he knows by experience is the larger and longer river, he will easily come to understand the meaning and application of the ordinary geographical terms—tributary or affluent, as applied to the rivers Irk and Medlock. The meaning of the term confluence, which is usually applied to the point of junction of a river and its tributary, cannot, however, be practically illustrated in the case of the Manchester rivers, for the Irk is largely culverted to its outlet into the Irwell, near the Exchange Station, whilst the Medlock is dammed and locked to form a reservoir for the canal basin at Castlefield.

As regards the physical structure of the country traversed by the river and its tributaries, he will easily see that a very winding course, as that of the Irwell in Salford or of the river Medlock in Manchester, indicates a fairly level tract of country by contrast with a direct course as that of the Irk, which indicates a river rushing rapidly down an adjoining hill-land, bearing destruction in its path in time of flood, as did the old Irk in the story of the "Manchester Man." And these several features of the country traversed, the pupil may easily observe for himself, riding and rising up Rochdale Road, parallel with Irkdale, or crossing the country from Chester Road to London Road, alongside the river Medlock, with other illustrations from other parts of England and the world. In further connection with the blue lines representing the rivers Irwell, Irk, and Medlock, it is to be noted that the twin towns of Manchester and Salford cluster round them.

And here arises an interesting question, Why do the ordinary geographical textbooks almost always, and rightly so, mention towns in connection with the rivers on which they stand? In other words, of what practical use are rivers to the towns which stand on them? By a series of questions and answers, founded on his own observations and experiences, the teacher ought to be able to obtain from the pupils themselves a summary of the uses of the local rivers to Manchester and Salford, and so to infer the uses of rivers to towns generally.

Thus, in the case of the river Irwell, some of the students may remember to have seen the small passenger steamers which used to ply from the Victoria Pier, near the Cathedral steps and the Exchange Station, to the Trafford Wharf and the Salford Docks, and which are still to be seen moored near their original starting point.

Others may know of the rowing clubs on the river Irwell. Others, again, recognising history in names as well as names in history, of which many examples are to be found in and near Manchester, may have learnt the history of Quay Street, and how it got its name from the old landing place for cargo in the days long gone by, long before barge or ship canals were even thought of.

From all of which the students would infer the ancient and modern use and importance of rivers as highways of commerce and communication.

In the same connection, some students might possibly be able to point out that rivers are of use, not only as waterways in themselves, but also as supplying the water without which canals could not exist, owing to the

large waste of water in locking down vessels. Hence they would infer that the Irwell is absolutely essential to the Ship Canal, and that any diminution in the water supply would seriously interfere with its efficiency.

To others the names of Long Millgate and Knott Mill, etc., would suggest the importance of the waters of these and other rivers as a source of power before the introduction of steam.

A third student might possibly suggest that in his tram travels along Oldfield Road, Salford, and Oldham Road, Manchester, he had noticed how the long lines of factory chimneys seemed to follow the winding of the waterways, whether these waterways be rivers or canals. Accordingly, he would suggest the importance of the water for the production of steam, whilst the waterway was of use to carry fuel cheaply from the mine, and raw material to the mill.

The colour of the waters of the Manchester rivers, with the presence of bleaching, dyeing, and calico-printing works on their banks, would suggest another use—the drainage of the country.

But there is no need for me to retail and detail all the uses of rivers here and elsewhere. Sufficient has been said to show that the preparation of a course of local geography presupposes on the part of the teacher a thorough knowledge not only of the town but also of the surrounding country, from which the pupils, if day students, will mostly come, and whose experiences he ought to be able to utilise to the fullest extent.

And here I may remark that the acquiring of the necessary practical information constitutes not the least laborious, but, nevertheless, as we shall presently see, the most important part of the teacher's preparation of a course of local geography. And, it may be added, that the want of the energy to make this practical and peripatetic study is one of the chief causes why the study of local geography is so little taken up and taught, as a preparatory course, to the larger study of other and more distant countries at home and abroad.

Of course opinions may differ as to some of the explanations here offered, but that does not militate against the fact that it is a valuable exercise in observation and inference, and in training the reasoning powers of the pupils.

THE STREETS—ASPECT OF SHOPS AND OFFICES, ETC.

Turning next to the meaning and use of the lines indicating streets, we have first of all a series of distance circles and compass direction lines, both of the highest importance in training the observation and inference or reasoning powers of the pupils, to which I have just referred.

The distance circles, measuring quarter-mile areas outwards from the centre of the city, near the Exchange and St. Ann's Square, give the pupil an excellent idea as to how far it is from one point of the city to another. Thus he can easily see that it is a mile from the centre of St. Ann's Square to All Saints; from all of which a useful exercise might be formed in calculating cab fares, as also the time occupied in walking from one railway station to another by the most direct route.

The compass direction lines are still more valuable as indicating the aspect of the shops and offices, with their respective uses for displaying different kinds of goods, etc. In illustration of my meaning in this matter of observation and inference, let us suppose teacher and student to make a

round tour from Deansgate, along Market Street, and by Piccadilly and the Infirmary to Ardwick Green, returning thence along Oxford Street and by Albert Square and the Town Hall to the Exchange.

Apart from observations on the very busy traffic of Market Street, as being in the very centre of the city, it might be asked: What observations could we make about the still existing Infirmary and its site, when arrived there? As regards position, it occupies one of the best possible sites for such a purpose, from a geographical point of view. It is in the first place conveniently situated, locally, in the heart of the city for the home accidents, and for unfortunate outsiders, equally handy to the three great railway termini—the London Road, the Exchange, and the Central Stations.

Medically, and as a sanitarium for the recovery of convalescing in-patients in the heart of a big city, it not only has an open area around it, but it is otherwise equally well placed, being situated on the highest ground between two river basins—those of the Irwell and Medlock—with good drainage either way.

In geography we talk of water-partings, water-sheds, and river basins. The common definition of a water-parting is the line of high ground dividing the waters flowing in one direction from those flowing in another; whilst the term water-shed may be suitably applied to the slopes down which the rivers run. The ridge and roof of a house are good illustrations of these definitions respectively.

Now as to the water-parting on which is situated the Infirmary?

The pedestrian and observant traveller cannot but have noticed the steady rise up Market Street from the river Irwell to the level of the Infirmary flags, after which he beholds a deep drop along Piccadilly and by London Road Station to the waters of the murky Medlock.

Without wearying you with a description of the whole distance round in detail, it might be asked: What observations could teacher and student make in Oxford Street? Emerging from Ardwick Green opposite the Owens College, and this time travelling townwards, we are soon led to notice the contrast between the two sides of this busy thoroughfare. No one can fail to be struck with the fact that, whilst one side is lined with shops of a fairly good class, the other side is occupied with dilapidated looking dwellings, followed by dingy-looking shops, with very little improvement in appearance, even where attempts have been made at display in the shape of elaborate shop fronts.

And what is the meaning of the contrast? Let us open out a map of the city and nearer suburbs, and note that in reading the map the top represents the north, the bottom the south, the right-hand side the east, and the left-hand side the west.

Now, what is the direction of Oxford Street, or Oxford Road, as it is variously called? It is more or less south-east.

And here, in the question of aspect, we have the key to the contrast. The shabby side is the sheltered one, sheltered from the cold, biting east winds, but open to the balmy west winds and the warm rays of the afternoon sun. Similar contrasts are to be seen and noted in many of the highways of the business centre—notably in Deansgate, Oldham Street, and Stretford Road, as also in the industrial city, and even in the residential suburbs. In making the round of the city our arrival at the front of the Town Hall would be the signal for a summary lesson on the government

of the city by Lord Mayor, Aldermen, and Town Council as a foundation for a study of the government of larger areas—for example, the government of the whole country by King, Hereditary Lords, and Elective Commons. Similarly we should discuss the Exchange, by contrast and comparison with other exchanges in the city, as well as those in other centres and seaports of the world.

COMMERCIAL CENTRES IN THE CITY.

The distribution of industries, trade, and commerce over the city would form another point to notice in a practical study of the streets. This would form an important introduction to the larger study of the distribution of industrial areas over the whole country, as well as in foreign lands.

Thus, to begin again at our convenient starting point, the Exchange, the teacher and student will find that the main thoroughfares are lined with shops and offices—shops below and offices above, the latter entered by doorways leading to suites of rooms suitably designated chambers, some of which are almost equal to streets in the number of offices and in the extent of the accommodation they afford.

Whilst, however, it is a case of shops below and offices above in the high-ways near the Exchange, in the byways of the centre there is a different distribution of the chamber buildings, usually a threefold division: Firstly, there is the basement, which may be tenanted by manufacturers, with the name of the goods they make and the mills or manufactories outside the city. Next, the ground floor, a little above the street level, usually occupied by some great insurance company, owning the block as a safe investment and security for its funds. Above these again are the offices and agencies, entered by the common doorway of the chambers below.

As to the occupants of the offices, a little observation of name plates will show him that it is agents, architects and surveyors, accountants, and cotton brokers near the Exchange. Further afield, about Booth Street, etc., it is crowds of lawyers, in close proximity to the Court of Chancery and the High Court of Justice.

Continuing our way, in George Street we find ourselves in the very heart of the home trade area, with on every door and window not only the name of the man, but what he makes, with the mills and manufactories perhaps in some beautiful valley of far-off hill-land.

Arrived at Princess Street, Portland Street, and adjoining districts, we find ourselves by contrast with the home trade in an area of shippers, makers-up, and packers, with all manner of foreign names, not only of people but also of places, sometimes in the very language of the country itself—all conveniently situated to the source of hydraulic power hard by.

If we traverse the byways on the other side of Market Street, we find a different state of things prevailing. Near the Corn and Produce Exchange, above and below Corporation Street and in Cannon Street, it is tea dealers, grocers, corn and provision merchants; whilst if we pass on into Church Street and Dale Street it is the names of some very large firms of general warehousemen, supplying nearly everything required in the house, shop, or office—a sort of universal providers.

In studying industrial Manchester it is not the general distribution of industries along the lines of the waterways alone that we have to consider,

but also the special facilities for carrying on particular industries in particular districts. Thus, it is not sufficient that chemical works be carried on near a canal or waterway for the cheap import of raw material—say salt; with the easy and safe distribution of the manufactured products, as sulphuric acid, but the effect of the noxious fumes has to be taken into account, and the consequent depreciation of a district.

Breweries, bleach and dyeworks again may owe their position to an easy and cheap supply of suitable water, saturating the red sandstone rocks beneath the very works themselves, as along the line of the Irwell in Salford.

Then there are the homes of the people to be considered, the lofty artisans' dwellings, by contrast with the old and only home in a self-contained cottage, even though that cottage be but a house in a row, or one of a number in a more or less congested street.

The comfortable head gear and foot wear of the cotton operatives would call for remark; warm woollen shawls over the head, neck, and shoulders of the women, with the equally warm and dry clogs on the feet, by contrast with the rheums and rheumatics of the more fashionable wearer of the hat and high-heeled shoe.

The element of history and romance would come in in connection with commerce and communications. For example: What more picturesque pilgrimage can be made than to the Old Quay, or to Castlefields and its canals, with their ancient warehouses and underground wharves, or to Liverpool Road to see the old original passenger station of the first Liverpool and Manchester railway, still in use, but for goods, not for passengers now.

But I must not weary you with a long catalogue of things to be seen in the city and suburbs, as if I were already drawing up a Syllabus of Local Geography, for there remain many things to be seen, if only we had time. Rather let me conclude with the remark with which I began, that, rightly taken up, Geography is no longer a mere memory subject, but it is also an observational study, and one capable of much mental development in reasoning out the relationship of cause and effect which frequently arise both at home and abroad.

NEW MAP.

MAP OF LANCASHIRE AND CHESHIRE. Reduced from the Ordnance Survey. By E. G. W. HEWLETT, M.A., and C. E. KELSEY, M.A.
Scale 1/126,720, or 2 miles to 1 inch. London: E. Stanford. 1904.

THE physical features are well and clearly shown on this map. The hills and valleys on the north and east, and the extent of the Cheshire plain being especially noticeable. Certain political features are also given very distinctly, and an examination of the boundary between Lancashire and Cheshire, with its numerous intersections of the Ship Canal, indicates the need for its revision by the County Authorities. The comparative sizes of the towns are easily seen at a glance. Altogether this map should prove a useful help to a knowledge of the geography of the district.

ANNUAL MEETING OF THE SOCIETY, 1904.

THE 19th Annual Meeting of the Society was held in the Library, St. Mary's Parsonage, on Tuesday, May 17th, 1904, at 7 p.m. The Rev. S. A. STEINTHAL, F.R.G.S., Chairman of the Council, presided.

The notice convening the meeting was read.

An apology for unavoidable absence from Mr. S. Oppenheim, J.P., was read.

The Rev. S. A. STEINTHAL proposed, and Mr. J. HOWARD REED seconded, and it was resolved unanimously in silence that—

"The Manchester Geographical Society, at its Annual Meeting assembled, records its deep sense of the great services which, with unsurpassed energy, unfailing courage, and unconquerable determination, Sir Henry Morton Stanley has rendered to Geographical Science, overcoming seemingly insuperable obstacles and difficulties in his journeys in Africa. They remember his great achievements, and are glad that he allowed himself to be enrolled as an honorary member of their Society, the foundation of which he hopefully greeted twenty years ago. They respectfully request Lady Stanley to accept the assurance of their deep sympathy with her in her bereavement, and pray that our Heavenly Father may comfort her with His Holy Spirit in affliction which, though felt by so vast a number of men and women of many lands of such varied rank and character, falls upon her as upon no one else."

It was proposed by the Rev. S. A. STEINTHAL, seconded by Mr. HARRY NUTTALL, and carried unanimously in silence that—

"The Manchester Geographical Society has heard with deep sorrow of the decease of their generous friend Mr. J. P. Thomasson, and share with all who were privileged to know him the sense of loss which it has caused. Few men have as faithfully as he strived to do their duty in the world and use the talents entrusted to him by God so conscientiously for the service of others. With reverent regard, they would ask Mrs. Thomasson and her children to accept their profound sympathy with them in their bereavement, and pray that our Heavenly Father may comfort and uphold them in their sorrow."

The CHAIRMAN reported having written a letter of condolence to Mrs. Sowerbutts and family by direction of the Council, and read the following reply from Mrs. Sowerbutts.

"Grassbrow House, Blackley,
"May 5th, 1904.

"Mrs. Sowerbutts and family return sincere thanks to the Manchester Geographical Society for kind expressions of sympathy with them in their bereavement."

The following report of the Council was then read by Mr. REED, Honorary Secretary, who made a statement as to the appointment of an Executive Committee of the Council and of an Assistant Secretary and other arrangements for carrying on the work of the Society:—

REPORT OF THE COUNCIL OF THE MANCHESTER GEOGRAPHICAL SOCIETY

FOR THE YEAR ENDING DECEMBER 31ST, 1903.

The Society during the last year has been very active. The preparatory arrangements, which are now complete, having to be made for the new building, have caused a good deal of unrest and extra labour. Notwithstanding, progress has been made, and the interest of the members of the Society has been maintained.

The following list of addresses and papers will show the wide range of subjects which has characterised the Society's operations:—

EUROPE.

The Roman Wall about Hexham. Mr. J. J. Gleave.

Little England beyond Wales. Mr. J. Howard Reed.

The Opportunity of Manchester. Professor W. Boyd-Dawkins, M.A., F.R.S.

The Opportunity of Manchester. Mr. Charles Brumm.

Modern Methods of Dealing with Traffic at the Port of Manchester.
Mr. J. B. Brown.

Days in the Dukeries. Mr. John Snaddon.

Notes of a Voyage to Lisbon and the Canary Islands. Mr. John
Snaddon.

Landscapes in Central France, Auvergne, and Le Puy. Mr. A. J.
Herbertson, M.A., Ph.D.

Wendish Baltic Ports of the Hanseatic League. Mr. E. W. Mellor,
J.P., F.R.G.S.

Rome. Mr. John R. Smith.

Antwerp Cartographic Exhibition. The Secretary.

Düsseldorf Exhibition. The Secretary.

Düsseldorf Navigation Conference. The Secretary.

Wolverhampton Exhibition. The Secretary.

Topographical Studies of Three British Poets: Cowper, Lamb, and
Falconer. The Secretary.

ASIA.

A Week in Pekin. Professor R. W. Swallow, B.Sc.

Journey from Pekin to Tai Yuen fu. Professor R. W. Swallow, B.Sc.

The Land of the Sikh. Mr. E. E. Lafond.

Women of China. Mrs. Swallow.

AFRICA.

Twenty-five Years in Nyasaland. Mr. John W. Moir.
South Africa as I saw it, 1900-1. Mr. E. S. Payton, Hon. Lieut. R.E.
Women of East Africa. Mrs. Wakefield.
A Journey to Sierra Leone and French Guinea, West Africa. The Rev.
Canon F. C. Smith, M.A., F.L.S., F.R.G.S.

AMERICA.

Island of Trinidad. Mr. J. Howard Reed.
Volcanic Eruptions: Martinique and St. Vincent. The Secretary.

GENERAL.

The Story of the Earth. Mr. H. C. Martin.
Richard Roberts' Model of Loop the Loop. Sir Wm. Bailey, Kt.
Geographical Education. Mr. J. H. Bentley.
Cotton Growing within the British Empire. Mr. J. Howard Reed.
Volcanoes and Earthquakes (Children's Lecture). Mr. H. C. Martin.

CORRESPONDENCE.

The letters from the Society's correspondents have been most interesting. The Council has received letters from South Africa, China and North America; several interesting communications from Mr. A. J. Kennedy, F.R.G.S., on his progress round the world; and from Professor Angel Ma Diaz Lemos, Medellin, Colombia.

PRESENTATIONS.

The Society has again to acknowledge its great obligations to various Governments, to some departments of our own Government, to the Corresponding Societies who have kindly sent their publications, and to the members and friends of the Society for the presentation of maps, books, and objects for the Museum.

The presentations have been again so large that the fact that more room is required for their proper storage has been more than ever impressed upon us.

DELEGATIONS.

Mr. Joel Wainwright, J.P., and the Secretary were present at the Meeting of the British Association at Southport on behalf of the Society, and their report has been given to the Council.

THE "VICTORIANS."

The Society is again indebted to the members of the "Victorians," who have given a large number of addresses to the various affiliated Societies; some of the lectures have been given to very large audiences. Their report will be found below.

ANSWERS TO QUESTIONS IN GEOGRAPHY.

The answers given to questions put in "Geography" have this year been quite up to the mark.

Mr. J. D. Wilde, M.A., again obliged the members by examining the papers, and awarding the prizes.

The highest prize has this year been won by a boy living in Hardman Street, Deansgate, and his drawing of the River Nile is quite a marvel. Some beautiful work in map drawing and sketching has been sent in by a boy from Eccles. If the Society were able to do it, these lads ought to be taken under the Society's care.

The Council has retained the answers received, which can be seen at the Society's house.

THE JOURNAL.

The Council has had some difficulty in obtaining the notes from the lecturers, and the publication of the Journal for 1903 has consequently been delayed, but it is now nearly completed, and the numbers in arrear will be issued shortly.

EXCURSIONS OF THE SOCIETY.

Some useful Excursions have been made during the year, and have been a pleasure to the members taking part in them.

The following is a list of the places visited:—

Middleton.

Oldham.

Burnley.

Marple.

Salford Corporation Sewage Works, Weaste.

Messrs. Royles Limited, Irlam.

Hulme Patent Advertising Match Company, Irlam.

DEATHS.

The Society has again with very great regret to record a heavy death rate, including the following members:—

Alderman R. Bates, J.P.

Mr. W. C. Jones.

Mr. S. Ogden, J.P.

Rev. Philip Read.

Mr. J. F. Sullivan.

Mr. Thomas Ward.

Mr. J. Wilson.

THE REPORT OF THE HON. EXAMINER IN GEOGRAPHY.

Highbury House, St. Leonards-on-Sea,
January 7th, 1904.

To the Secretary of the Manchester Geographical Society.

DEAR SIR,—Again I have the honour to report to you that I have examined the answers set during the year in "Geography." As in former years, three questions have been set each month, only one of which might be attempted by each candidate. The regulations were, I think, very clearly expressed, viz., (i.) that only one question should be attempted each month; (ii.) that the fact of having chosen A. B, or C one month should not influence the choice in any subsequent month; (iii.) that answers should be written on foolscap paper, and on one side only; and (iv.) maps should be drawn on half imperial sheets of paper—*i.e.*, 22 inches by 14½ inches. It was not thought necessary to repeat that *all* answers should be illustrated, when possible, by maps, yet the disregard of this obvious point in a geographical competition and of the fourth rule has had a very great influence in deciding the positions of some competitors, and has possibly diverted the first and second prizes to other destinations.

The number of entries this year has again decreased, dropping from twenty-seven last year to fifteen this; but, on the other hand, the general perseverance shows improvement, for while last year only six candidates answered the complete set of ten questions, and fourteen failed to answer more than five, this year seven have completed a set of eleven questions, and only five have done less than half the number.

With regard to the quality of work shown, I am afraid that I must report a slight falling off. Certainly no candidate has shown that grasp of geographical facts and principles that characterised the work of the prize winner last year, but at the same time there is more evidence of application on the part of the young students, which only requires improved teaching to produce good results. It cannot be too often repeated that no map can be a really good one from an examiner's point of view which does not show some knowledge of the most elementary principles of projection. Artistic taste of a high quality has been displayed by more than one candidate, and a few have become conscious of the fact that lines of latitude and longitude exist, but none appear to know any rules for drawing them. Colour has been employed in some instance with good effect, in others not. Candidates should make the colour more systematic.

Although geography is our main subject, it is not to be forgotten that the proper use and spelling of the English language must have an effect on the number of marks awarded. One or two candidates were especially weak in this respect.

I am pleased to see such a number of new names this year, though I miss many old ones, from whom I expected much this time, with regret. I think the organisers of this competition should have their attention drawn to the increasing age of the candidates. Class C. for those under ten years old has this year been non-existent.

To come now to the most interesting part—the final result of the competition.

The full marks possible to be obtained were 475, out of which, in

CLASS B, JUNIORS,

D. Marshall	obtained...	20	
Evelyn Harris	,,	130	
Walter Roberts	,,	220	} Equal. Prize.
William Stubbs	,,	220	
James Faulkner	,,	280	
			(1)

CLASS A, SENIORS,

C. E. Marshall	obtained.....	0	
J. A. Marshall	,,	30	
Samuel Royle	,,	135	
V. D. Kelsall	,,	140	
F. Spencer	,,	260	} Prize.
W. R. Jones	,,	265	
Annie Twynan	,,	270	
Christine Harris	,,	280	
T. M. Barlow	,,	345	(2)
J. T. Eaton	,,	355	(1)

In the junior division the prize is won by James Faulkner; in the senior by John Thomas Eaton. I recommend that a second prize be given to Thomas Middleton Barlow, whose presence in the seniors is due not to age but to his having already taken first prize in the juniors, and whose papers show great taste, artistic skill, and perseverance, and who has come very near the first place in the seniors.

I have the honour to be,

Yours very truly,

JAS. D. WILDE, M.A. (Oxon),

Principal of Highbury House, St. Leonards.

(Examiner.)

REPORT OF THE "VICTORIANS," 1903-1904.

The "Victorians" have much pleasure in being able to report that the work of the past winter has been of great interest.

A large number of lectures, all illustrated with magnificent lantern slides, have been delivered in the County Palatine and adjoining counties. The lectures have been generally received most cordially, and the efforts of the lecturers enthusiastically approved. A growing demand has been experienced for addresses upon the subject of "Cotton growing within the British Empire," induced by the action of financial speculators in America, and its deplorable effect on the staple trade of Lancashire.

The subjects of the addresses are revised every year, and arranged to coincide with the questions which arouse the interest of the hour; by reference to the list attached to this report it will be seen to what extent they cover the subjects of geographical interest.

The "Victorians" have carried on this work of geographical education for several years, and though their efforts have long since been highly appreciated by their audiences, there are now clear signs that this important work is being somewhat tardily recognised by the acknowledged educational authorities.

The record of the work of the "Victorian" Lecturers, together with the names of the towns in which they have been delivered in former years, will be found in the back numbers of the *Journal of the Manchester Geographical Society* already published and issued.

The Children's Party, which has been an annual event for several years, was held during the New Year holidays, when valuable prizes were given to the successful students for answering questions in "Geography" from the Children's Corner. The usual Christmas cake was this year most kindly provided by Mr. R. W. Swallow, one of the Society's members, teacher of the English language in the University of Tai Yuen fu.

The "Victorians" again make an appeal for assistance to the general body of members of the Manchester Geographical Society who are willing and able to lecture. They will be welcomed by that section of the "Victorians" who are at times overwhelmed with applications for addresses, and who will be glad to receive a few additions to their limited number.

The "Victorians" are much gratified at the action of the officers of the Eccles and Barnsley Co-operative Societies, who have decided to offer prizes to the youthful members of their audiences who, after hearing a lecture by a "Victorian," shall excel in writing a synopsis of what they have heard, and they trust this method of encouragement in the Study of geography will be followed by the executives of other Societies.

The following is a summary of the lectures delivered during the year under review:—

"VICTORIAN" LECTURES, 1903-1904.

SEPTEMBER.

8. Girls' Institute, Ancoats. "Western Highlands of Scotland." Mr. Wm. Harper.

OCTOBER.

12. Farnworth. "A Visit to Lisbon and the Canary Islands." Mr. John Snaddon.
19. Whaley Bridge. "Isle of Man." Mr. H. C. Martin.
19. Burnley. "Cotton Growing within the British Empire." Mr. J. Howard Reed.
20. Middleton. "Morocco." Mr. Wm. Booth Leech.

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- 26. Chadderton. "Isle of Man." Mr. H. C. Martin.
- 28. Eccles. "Isle of Man." Mr. H. C. Martin.
- 29. Barnsley. "South Africa." Mr. J. Howard Reed.

NOVEMBER.

- 3. Withington. "Isle of Man." Mr. H. C. Martin.
- 7. St. Leonards. "Capetown to Cairo." Mr. J. Howard Reed.
- 9. Farnworth. "Lakes of Killarney." Mr. H. C. Martin.
- 10. Burnley. "Land of the Sikh." Mr. E. E. Lafond.
- 11. Walkden. "Isle of Man." Mr. H. C. Martin.
- 17. Oldham. "Rome." Mr. John R. Smith.
- 18. Whitefield. "A Three Hundred Miles' Tour in Devon." Mr. R. Stewart.
- 18. Urmston. "Connemara and the Western Highlands of Ireland." Mr. M. W. Thompsonstone.
- 23. Cheadle Hulme. "Solar System." Mr. H. C. Martin.
- 30. Horwich. "Dominion of Canada." Mr. A. Y. Scholfield.
- 30. Chadderton. "Rome." Mr. John R. Smith.

DECEMBER.

- 7. Whaley Bridge. "Rome." Mr. John R. Smith.
- 9. Whitefield. "Earth in Space." Mr. H. C. Martin.
- 10. Churnet Street Public Hall, Manchester. "Western Highlands and Islands of Scotland." Mr. J. S. Reid.
- 14. Meltham. "Regenerated Egypt." Mr. J. Howard Reed.
- 16. Walkden. "A Visit to Lisbon and the Canary Islands." Mr. John Snaddon.
- 16. Patricroft. "Regenerated Egypt." Mr. J. Howard Reed.

JANUARY.

- 12. Middleton. "A Little Known Corner of Yorkshire." The Secretary.
- 16. Polygot Club, Roubaix. "Westward Ho." Mr. C. H. Bellamy, F.R.G.S.
- 19. Hollinwood. "The Land of the Sikh." Mr. E. E. Lafond.
- 20. Greenacres, Oldham. "A Fortnight in Belgium." The Secretary.
- 25. Chadderton. "A Week in the Scilly Isles." The Secretary.
- 25. Horwich. "From Capetown to Cairo." Mr. J. Howard Reed.
- 27. Eccles. "Rome." Mr. John R. Smith.
- 28. Urmston. "Norway." Mr. A. Y. Scholfield.

FEBRUARY.

- 1. Carlile Institute, Meltham. "Rome." Mr. John R. Smith.
- 8. Farnworth. "A Visit to Lulea Lake, Lapland." Mr. E. W. Cowan, C.E.

10. Walkden. "Rome." Mr. John R. Smith.
11. Barnsley. "A Three Hundred Miles Tour in Devon." Mr. R. Stewart.
22. Cheadle Hulme. "Florence—Topography, History, and Art." Mr. John R. Smith.
22. Eccles. "A Three Hundred Miles Tour in Devon." Mr. R. Stewart.
25. Barnsley. "A Visit to Lisbon and the Canary Islands." Mr. John Snaddon.
29. Chadderton. "Our Mercantile Marine—Past and Present." Mr. M. W. Thompson.

MARCH.

3. Higher Broughton. "Western Highlands and Islands of Scotland." Mr. J. S. Reid.
7. Whaley Bridge. "A Visit to Lisbon and the Canary Islands." Mr. John Snaddon.
7. Leigh. "Dominion of Canada." Mr. A. Y. Scholfield.
10. Churnet Street Public Hall, Manchester. "Belgium." The Secretary.
14. Whaley Bridge. "Japan, the Land of the Rising Sun." Mr. J. Howard Reed.

DECEASE OF MR. ELI SOWERBUTTS.

Since this report has been in type, the Society has suffered the severest loss it could sustain, by the death of Mr. Sowerbutts on the 30th April, 1904.

It is impossible to say what the Society owes to its late Secretary. It was he, whose indefatigable perseverance amid many discouragements, led, in 1884, to its foundation, and his zeal and enthusiasm have carried on its work to its present condition of success. The members are all aware of the disinterested devotion he gave to their interests, and the generous spirit in which he worked to promote everything which advanced the welfare of the Society and of every individual member. They will share the depression of the Council, when looking forward to the arrangements for the future and the selection of a successor to the Secretaryship. Manchester has lost a citizen of no common worth, and Mr. Sowerbutts' friends mourn the decease of a comrade, who, in a life prolonged to well nigh the allotted three-score years and ten, has shown a never failing sympathy with them in joy and sorrow, and by continuous deeds of high-minded self-sacrifice has won the love and respect which will for ever be associated with his memory in their sorrowing hearts.

REVENUE ACCOUNT.

DB,

YEAR ENDING DECEMBER 31st, 1903.

CR.

	£	s.	d.
To Expenses of Meetings.....	98	10	9
" Journal, less Advertisements.....	124	15	0
" Rent, Gas, Water, and Insurance.....	108	15	6
" Salaries	110	10	0
" Books, Maps, Binding, and Library	11	11	0
" Sundry Expenses, Stationery, Postages, Telegrams, Carriage, Wages, Coal, &c....	106	15	11
" Commission and Expenses, New Members, and Collection of Subscriptions.....	18	5	10
" Education Committee's Expenses	3	0	4
" Repairs to Furniture	0	5	3
	<hr/>		
			£582 9 7

	£	s.	d.
By Members' Subscriptions—			
Ordinary	496	13	0
Associate	38	17	0
Societies	29	8	0
	<hr/>		
" Bank Interest	564	18	0
" Balance Deficit on Year 1903	2	14	5
	14	17	2

BALANCE SHEET, DECEMBER 31st, 1903.

LIABILITIES.		ASSETS.	
	£ s. d.		£ s. d.
To Subscriptions paid in advance	10 10 0	By Subscriptions in arrear.....	44 19 6
„ Amounts owing to Sundry Creditors	181 7 7	„ Cash at Bank	1 4 0
„ New Building Fund.....	3 7 0	„ „ in hand	4 9 0
			5 13 0
		„ Balance deficit from 1902	129 14 11
		„ Add loss on year 1903	14 17 2
			144 12 1
	<u>£195 4 7</u>		<u>£195 4 7</u>

Note.—The Furniture, Fittings, Books, Maps, &c., in the Library, Stock of Journals and Lantern Slides are not taken into account as Assets in the above Statement. There are 33 Life Members, whose subscriptions have been taken as Revenue.

Audited and found correct,

May 6th, 1904.

THEODORE GREGORY, F.C.A.,
Honorary Auditor.

The CHAIRMAN, in moving the adoption of the Report and Balance Sheet, referred to the loss the Society had sustained in the death of the late Secretary, Mr. Eli Sowerbutts, and how the Council missed his genial presence.

The Honorary Treasurer seconded the motion, giving a short explanation and comparison of the accounts, and it was carried unanimously.

The Rev. F. A. REES moved, Mr. H. MORLEY seconded, and it was unanimously resolved that the best thanks of the meeting be tendered to the Council and officers for their services during the past year, and that the following be elected as Council and officers for the ensuing year:—

President.

His Royal Highness the PRINCE OF WALES, K.G.

Vice-Presidents.

His Grace the DUKE OF DEVONSHIRE, K.G.
The Right Hon. the EARL OF DERRY, K.G.
The Right Hon. EARL EGERTON OF TATTON.
The Right Rev. BISHOP MOORHOUSE.
The Right Rev. the LORD BISHOP OF SALFORD.
The Right Hon. the LORD MAYOR OF MANCHESTER.
His Worship the MAYOR OF OLDHAM.
His Worship the MAYOR OF SALFORD.
The PRINCIPAL OF OWENS COLLEGE.
The Right Rev. MONSIGNOR GADD, V.G.
The Right Hon. A. J. BALFUR, M.P.
Sir W. H. HOULDSWORTH, Bart., M.P.
HON. W. ROTHSCHILD, M.P.
Sir HUMPHREY F. DE TRAFFORD, Bart.
Sir FRANK FORBES ADAM, C.I.E.
Sir W. H. HOLLAND, M.P.
Alderman Sir BORDIN T. LEECH, J.P.
Alderman Sir JOSEPH LEIGH, M.P.

Sir WILLIAM MATHER.
Mr. FREDERIC BURTON.
Professor W. BOYD DAWKINS, M.A., F.R.S.
Professor T. H. COBE, M.A.
Mr. J. G. GROVES, M.P.
Mr. E. F. G. HATCH, M.P.
Mr. HENRY LEE, J.P.
Mr. HARRY NUTTALL, J.P., F.R.G.S., *Vice-Chairman of the Council.*
Mr. S. OPPENHEIM, J.P.
Mr. HERBERT PHILIPS, J.P.
Mr. C. E. SCHWANN, M.P.
Mr. C. P. SCOTT, M.P.
Mr. H. BOWLER.
Rev. S. A. STEINTHAL, F.R.G.S., *Chairman of the Council.*
Mr. J. D. WILDE, M.A.
Mr. F. ZIMMERN.

Trustees.

Mr. H. NUTTALL, J.P., F.R.G.S. Mr. SYDNEY L. KEYMER, F.R.G.S.
Mr. E. W. MELLON, J.P., F.R.G.S.

Honorary Treasurer.

Mr. D. A. LITTLE.

Honorary Secretaries.

Mr. F. ZIMMERN. Mr. J. HOWARD REED.
Mr. C. A. CLARKE, Hon. Sec. Vic.

Mr. J. E. BALMER, F.R.G.S.
Mr. JAS. BARNINGHAM.
Mr. G. T. BOWES.
Mr. J. C. CHORLTON.
Mr. C. COLLMANN,
Consul for the German Empire.
Mr. H. T. CROOK, J.P., C.E.
Mr. E. W. GREG, J.P., F.R.G.S.
Mr. Councillor T. HASSALL, J.P.
Mr. A. J. KENNEDY, F.R.G.S.

Mr. N. KOLP.
Lady LEECH.
Mr. J. H. LEWIS.
Mr. T. C. MIDDLETON, J.P.
Mr. R. C. PHILLIPS.
Mrs. PICKERING.
Mr. Councillor JOHN SNADDON.
Mr. T. W. SOWERBUTTS.
Mr. GEO. THOMAS.
Mr. H. WOOLLEY, F.R.G.S.

The Rev. S. A. STEINTHAL moved, Mr. F. ZIMMERN seconded, and it was unanimously resolved that the best thanks of the meeting be tendered to Mr. Theodore Gregory, F.C.A., for his services as Hon. Auditor, and that he be re-appointed for the coming year.

The Chairman, Rev. S. A. STEINTHAL, F.R.G.S., then delivered an address on "Geographical Research in the year 1903." (See page 1.)

It was moved by Mr. HARRY NUTTALL, seconded by Mr. THEODORE GREGORY, supported by the Rev. F. A. REES and Mr. J. HOWARD REED, and resolved unanimously that the best thanks of the meeting be tendered to the Chairman for his address.

PROCEEDINGS OF THE SOCIETY.

APRIL 1ST TO JUNE 30TH, 1904.

The 672nd Meeting of the Society was held at Rochdale, on Saturday, April 9th, 1904.

A party of members were met at Rochdale Station by Mr. Ollier, who conducted them to St. Chad's Church, where the party were received by the Venerable Archdeacon Wilson.



ST. CHAD'S CHURCH, ROCHDALE—INTERIOR.

The Archdeacon described the construction of the Church, and pointed out various interesting objects contained therein, including the Norman arches, the trade mark of a Mason's Guild on the head of one of the Norman pillars, the ancient stone clock faces which have been placed in the floor of the vestry, a Norman font which had been buried in the ground for 250 years, and a copy of the Gospel of St. Mark written by St. Chad (in English), with an explanation appended by the Archdeacon. He called attention to a beautiful iron and stone screen presented by the boys of Clifton College to himself after he ceased to be the headmaster, and showed the members the list of vicars of the parish, one of whom was

vicar for 62 years and another for 40 years, the latter dying of plague at the time when one half of the people of Rochdale were carried off by it; the registers, which commence in 1588, are in good condition. A piece of land adjoining the church has been presented to the town for a public park by the Ecclesiastical Commissioners. The Archdeacon drew the attention of the members to the obelisk to the four English writers which has been erected half way down the hill, and pointed out the gravestone of John Collier (Tim Bobbin). It appears that the stone has been worn by the feet, and to preserve it the Archdeacon has had it put on a slab of marble. A gun-metal design was erected around the stone, but unfortunately some of the gun metal was taken away by some people unknown, so it is now protected by some railings six feet high, which make it exceedingly difficult to see the stone.

Some of the party went down the 124 steps to Packer Street and met the others at the Town Hall, which was visited. Mr. Ollier then conducted the party to the Art Gallery to see the Spring Exhibition of Pictures. The party were invited to tea by Mr. Alderman Duckworth, after which a hearty vote of thanks was passed to Archdeacon Wilson, to Alderman James Duckworth, J.P., F.R.G.S., our generous host, and to Mr. Ollier for his kindly guidance.

The 673rd Meeting of the Society was held in the Library, on Wednesday, April 13th, 1904. In the chair, the Rev. S. A. Steinthal, F.R.G.S.

The Chairman (Rev. S. A. Steinthal, F.R.G.S.), Vice-Chairman (Mr. Harry Nuttall, J.P., F.R.G.S.), and other members of the Council received the members at 6 p.m.

At 7 p.m. the Rev. R. Swallow, M.D., who has resided in China for thirty years, addressed the members on "How a Silver Mine was Not Opened."

The evening's proceedings were varied by Miss Martin obliging with a song, Miss Smith kindly giving a pianoforte solo, and Mr. and Mrs. Hindle a duet.

The Secretary moved, Mr. Joel Wainwright, J.P., seconded, and Mr. Harry Nuttall, J.P., F.R.G.S., supported a vote of thanks to Dr. Swallow for his interesting and instructive address, which was carried unanimously.

Dr. Swallow responded.

A hearty vote of thanks to Miss Martin, Miss Smith, and Mr. and Mrs. Hindle was moved by the Chairman, seconded by Mr. J. H. Lewis, and carried.

Mr. Hindle responded.

The 674th Meeting of the Society was held at Oldham, on Saturday, April 16th, 1904.

The Secretary led a party of members to the Museum and Art Gallery, where Mr. W. H. Berry, Assistant Librarian, pointed out the various objects of interest. One of the most interesting exhibits was a magnificent collection of butterflies in cases covered with American cloth to preserve the natural colours of the insects. The park and lake were also visited.

The 675th Meeting of the Society was held in the Library, on Tuesday, April 19th, 1904, at 7-30 p.m. In the chair, the Secretary.

Minutes of Meetings held March 8th, 15th, 22nd, and 29th, and April 9th, 13th, and 16th were approved.

The election of the following new members was announced:—

Ordinary: Messrs. Matthew Ingram, John McFarlane, M.A., Lecturer in Geography at the Victoria University, and Thomas Haworth.

Associate: Miss Gladys Stott.

Mr. J. Howard Reed addressed the members on "A Week in Flanders." The address dealt with a short holiday spent in Belgium and the North of France last year. The places visited, and views of which were shown on the screen, included Ostend, Bruges, Ghent, Brussels, Tourcoing, Roubaix, Lille, Douai, and Arras.

Mr. J. H. Lewis moved and Mr. James Hindle, L.R.A.M., seconded a hearty vote of thanks to Mr. Reed for his interesting and instructive address, which was carried.

Mr. Reed responded, and replied to questions asked by Surgeon-Major W. G. Black, F.R.C.S.E., the Secretary, and others.

The 676th Meeting of the Society was held in the Library, on Tuesday, May 3rd, 1904, at 7-30 p.m. In the chair, the Rev. S. A. Steinthal, F.R.G.S.

The Chairman announced that he had written to the President of the Society, H.R.H. the Prince of Wales, informing him of the death of Mr. Eli Sowerbutts, and in reply he had received the following letter from Sir Arthur Bigge:—

Marlborough House,
Pall Mall, 2nd May, 1904.

DEAR SIR,—I have laid your letter of yesterday before the Prince of Wales, and he desires me to express his regret at the great loss which the Manchester Geographical Society has experienced through the death of its Secretary, Mr. Sowerbutts.—I have the honour to be, dear sir, your obedient servant,

(Signed) ARTHUR BIGGE.

REV. S. A. STEINTHAL,
Heathfield, Withington, Manchester.

The Chairman also read the following, which he had received:—

Royal Geographical Society,
1, Savile Row, Burlington Gardens,
London, W., 2nd May, 1904.

DEAR STEINTHAL,—It is with real sorrow that I learn of the death of our dear old friend Eli Sowerbutts. Like all who have the privilege of knowing him well, I admired and liked him. He was an honest and straightforward man, a true friend, a man with a keen appreciation of geography, an excellent organiser, one to whom the Manchester Society owes a very great deal; its success is due to Eli Sowerbutts, and, as you say, it will be hard to find a successor with the ability, knowledge, and self-sacrifice capable of following in his footsteps. We had a Meeting of Council to-day, and I placed your letter before them. They desire me to convey to the Manchester Society their sympathy in the sad loss it has sustained

by the death of its devoted Secretary. They trust the Society will be able to find some one worthy to succeed him. They desire me to request you, as a fellow, to be so good as to represent this Society at the funeral. If I could possibly have got away I should have gone down myself.—I am, yours very truly,

(Signed) J. S. KELTIE.

Another letter of sympathy and appreciation from the Bishop of Salford (Dr. Casartelli) was read.

The Chairman proposed that a resolution of sympathy be forwarded to Mrs. Sowerbutts and family, which Mr. Joel Wainwright, J.P., seconded, and Mr. J. Howard Reed and Mr. J. H. Lewis supported, and the resolution was passed.

The Rev. P. A. McDermott, C.S.Sp., Old Calabar, West Africa, a member of Government Board of Education, Southern Nigeria, addressed the members on "the Development of West Africa." The address was illustrated with lantern slides specially made from Father McDermott's photographs.

A hearty vote of thanks to Father McDermott was moved by Mr. B. C. Phillips, seconded by Mr. Shovelton, and carried.

Father McDermott responded.

The 677th Meeting of the Society was held at Worsley, on Saturday, June 11th, 1904.

A party of the members, under the leadership of Mr. R. Stewart, proceeded through Broad Oak Park, past the celebrated Dam, to the village of Worsley. The leader having previously obtained permission, the members proceeded through the private gardens of Worsley Hall, being the first party to enter through the new gates.

After tea Mr. T. W. Sowerbutts moved, Mr. Wallace seconded, and it was resolved, that Captain Davis and Mr. Stewart be thanked for their kindness and assistance.

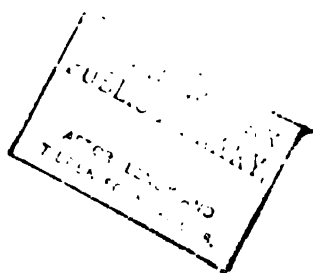
The 678th Meeting of the Society was held at the Chetham Hospital, on Saturday, June 25th, 1904.

The members were received at 3 p.m. by the Governor (Mr. W. T. Browne), and conducted by him through the buildings, tea being provided in the Refectory.

After tea Councillor Snaddon moved, Mr. R. Stewart seconded, and Mr. R. W. Rylands supported a cordial vote of thanks to the Governor for so ably leading the party, and to the feeoffees for the permission granted, and also in acknowledgment of the splendid work they are doing at the College.

Mr. Browne suitably responded.





THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

THE DEVELOPMENT OF WEST AFRICA.*

By THE REV. P. A. McDERMOTT. C.S.Sp. of ONITSHA, S. NIGERIA.

[Addressed to the Society in the Library on Tuesday, May 3rd, 1904,
at 7-30 p.m.]

I N addressing you this evening, at the invitation of your late lamented Secretary, I shall not weary you with any long preface or digression upon the general geographical aspects of the African Continent. I shall refrain from dates respecting discovery and gradual development of European administration within the Continent, as well as from figures respecting distances, except, perhaps, a mere cursory remark, as occasion may demand, when passing in review, on the screen, the various illustrations which I have prepared for your entertainment this evening.

I shall therefore confine myself rather to the treatment of some larger and, in my opinion, more vital questions that have reference either to the facilitating or the impeding of the great development which has of late years begun, and which is bound to proceed, within that mysterious continent that has for so many valid reasons been justly called the "Dark Continent."

There are, indeed, it must be confessed, some enormous impediments in the way of the civilisation and moral development of Western Africa. Happily they are not, any more than the material and physical obstacles, insurmountable, and with the growing influence of European ideas and Christian standards, backed up by education and a positive form of religious belief and practice, these impediments will gradually be weakened, if not eliminated.

THE BRITISH GOVERNMENT AND ADMINISTRATION.

In this great achievement I believe that the British nation is destined, by the providence of God, to play a great and prominent part. It is the nation that, in her entire policy—at least, to those poor peoples of Western Africa—shows the most conscientious desire to promote their real interests, even at the risk of incurring enormous sacrifices, as we witness to-day in Northern Nigeria. She insists upon absolute and incorruptible integrity in all her officials in those distant

* We are indebted to the proprietors of the "West African Mail" for the three illustrations in this paper.

protectorates; she insists upon the impartial administration of justice; she encourages and maintains, as far as possible, the local traditions and the native laws and customs in all that concerns the rights of individuals and of property. She even entrusts to the native chiefs a certain independent part in the administration of the law. In a word, she makes both chiefs and people convinced, in the long run, that it is their ultimate interest to accept her government, and to yield obedience to her mandates. It is only where these intentions, on her part, are either ignored or misinterpreted, or where the Government is confounded with the traders and their purely commercial, money-making designs, that local and isolated rebellions take place, and that punitive expeditions become an unfortunate necessity.

It was not always thus with the Government here at home, which, until very late years, was inclined to look upon the various portions of the West African continent thrust upon her protection, outside of a few places like Sierra Leone and Gambia, as almost a "white elephant" upon her hands. It is only since the advent of Mr. Chamberlain and his successors to the Colonial Office that any kind of real, deep, effective interest has been taken in the various colonies and protectorates lining the western coast; and this explains why, amongst the white men abroad, as well as at home, who are in any way interested in the prosperity and development of West Africa—outside of all question of individual political bias or opinion—the name of Mr. Chamberlain will ever be held in the deepest respect and gratitude. Since then the Government has taken up seriously these protectorates, and has gradually and even rapidly found out the vast resources for her imperial wealth and strength that lie hidden within their bosom, only waiting for the courageous hand that will venture to open up those treasures. Hence, capital has been encouraged; hence, the fears of perpetual illness and of impending death have been dissipated from the minds of those willing and anxious to go there, no longer to explore, but rather to develop.

HEALTH.

It is now no longer "The White Man's Grave," but a land where, with the observance of ordinary and simple precautions, the white man may sustain his health and vigour as well and as long as in any other part of the world. The food is better, the local conditions have been modified, noxious places and swamps have been marked and avoided, more suitable buildings are being erected, and thus the once fearful mortality, for which West Africa had long been noted, has now been happily and extremely diminished.

LAND.

The first great impression made upon the white man entering Africa for the first time is the realisation and consciousness of what a beautiful country it is on the whole, in spite of preconceived opinion and the vulgar prejudices of childhood's gloomy legends. There some beautiful sceneries in the interior after you have passed mangrove swamps that border the great rivers near their mouth



SOUTHERN NIGERIA : A TYPICAL BIT OF SWAMPY SCENERY.

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is no wonder the lands are low and swampy and unhealthy round the lower part of the Niger Delta when it is remembered how that delta has been produced—by the gradual formation, in the course of centuries, of those alluvial deposits carried down by the vast floods and quantities of water of which this great river is the channel and the outlet. No wonder the former explorers of the West African coast gave a gloomy picture of the country: almost impassable barriers and sand-bars at the mouth of every river—dangerous surfs all along the coast—fever-laden swamps and mud-banks, covered with slimy reptiles—these were the pictures which they brought back and conjured up before our imagination.

CLIMATE.

But let me tell you, gentlemen, that when transport facilities shall have become more abundant—when our inland river boats shall ply those magnificent streams, with frequency and rapidity, in the dry season as well as in the rainy season—and when our engineers shall overcome, with their ingenuity, their dogged grit and their perseverance, the difficulties of shifting sand-bar and roaring surf—when the Government shall have built the light railways up through the country from Old Calabar, as it has done, though in a more costly and more cumbrous form, in the hinterlands of Sierra Leone, the Gold Coast (from Sekondi to Coomassie), and Lagos (up through Abeokuta to Ibadan)—then you will find the European visitor returning home to tell other tales than those of malignant fever, of dreary swamp, and of impenetrable forest.

We have, therefore, the land, inexhaustible in its resources, interminable in its extent, fertile to grow almost anything that is sown with proper care and followed in its growth with proper supervision and vigilance.

LABOUR.

We have abundant labour amidst those teeming and closely-packed populations of Southern Nigeria. And let me tell you that these poor people are not the idle, lazy, good-for-nothing beings that are sometimes depicted as lying on their backs, naked and callous to all ambition, under a palm tree, without a thought other than to eat, drink, sleep, and carouse. No; they are keen, even to earn a threepenny bit extra by going a mile or more, if they can strike a better bargain. Put a spade or a hoe into their hands, and they'll work willingly and cheerfully for ninepence or even sixpence a day. It is true you must watch them, you must follow them, you must show them how; but you need not flog them, as in the days of slavery and of task-masters, with whips in their hands and bloodhounds by their sides.

DOMESTIC SLAVERY.

Here you will ask me, "To what extent does real slavery still exist within the limits of British West African territory?" I say it is not now allowed or countenanced at all by the British Government,

under any disguise, and whenever a man is found buying or selling a human being he is visited with the severest and most condign punishment. But there is allowed, and not only tolerated, but positively protected—and justly so, owing to the peculiar circumstances of family relationship, and the necessities of mutual support—a system of serfdom, which is sometimes called domestic slavery, but which is totally and radically removed from the degrading situation and stigma of real slavery. It is a system that bears strong resemblance to the patriarchal conditions of family life and dependence amongst the old Hebrew tribes. A chief may have 200 boys, or slaves, or dependents, whom he must support as long as work is lacking. But when they find work—and they are free to find and accept it, as well as free to trade when they get the opportunity—he has a claim upon one-third of what they earn to compensate him for the sacrifice that he may have to make otherwise for their maintenance. They are free to marry, they are free to educate their children, but they are not free to leave their original master or father and take permanent service with another. This system may have its defects, but it has advantages that become obvious only to those who live for a time amongst those ignorant people, needing, as they do, some visible and sensible bond to keep them from the wiles of would-be unscrupulous dealers in human traffic.

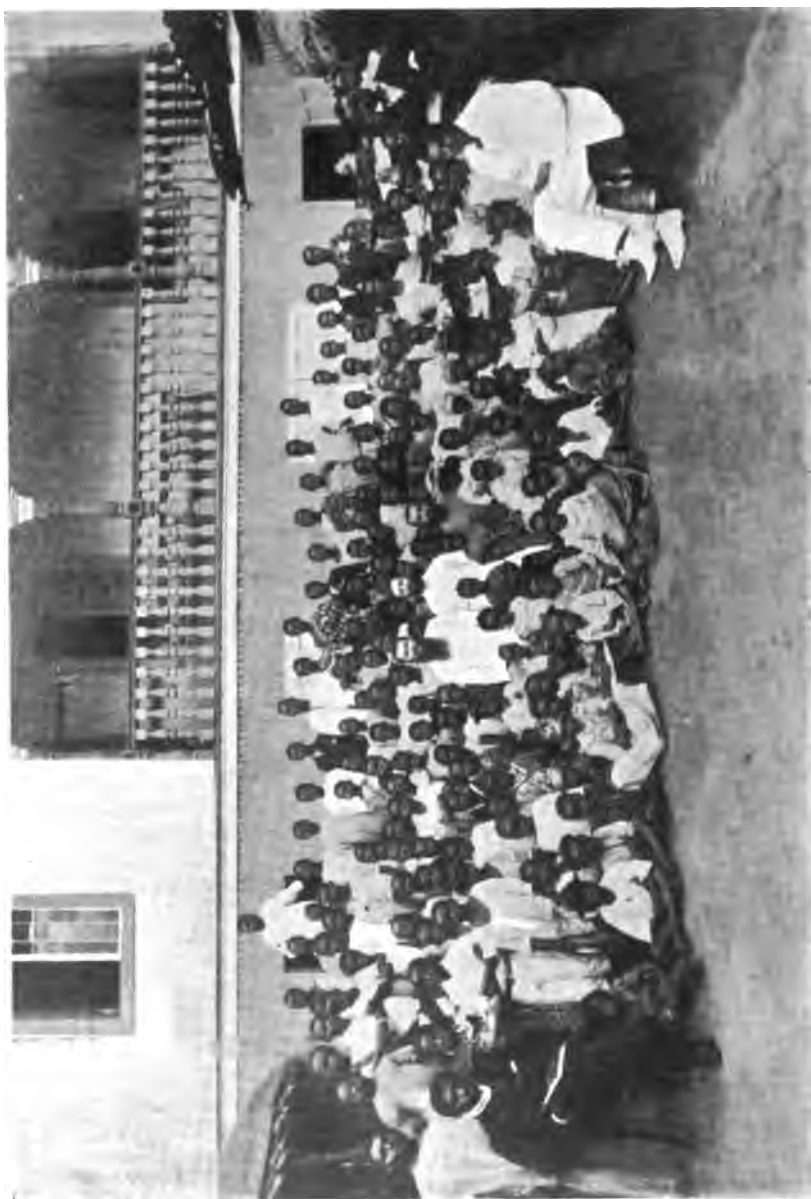
EDUCATION.

Another great factor in the development of Western Africa is the establishment of schools and the diffusion of a sound elementary English education. A code has been formed on the basis of the Scottish educational code; native teachers are being trained and encouraged; grants are given for attendance, for proficiency, for results, for buildings and school equipments.

No wonder a great change is coming over the entire country in places where this influence is felt. The young natives are now becoming more ambitious, and laudably jealous of the good positions hitherto monopolised by the more educated negroes of Sierra Leone, Elmina, and Lagos. The younger chiefs and princes themselves are beginning to realise the necessities of competition, and so in our schools we have young men of the best and highest families, who are studying even shorthand and typewriting, and even preparing for the Oxford University examinations, which would entitle them later on to become lawyers and doctors, for the benefit of their own people.

EDUCATION AMONG YOUNG CHIEFS.

It is the knowledge of this situation—the consciousness of this growing taste for education among the sons of the chiefs—which has mainly prompted me and incited me to the determination to found and establish an Agricultural Institute, whose chief purpose shall be the cultivation and diffusion of cotton. I say, advisedly, its *diffusion*, because I am convinced that when those sons of chiefs, congregated in this Institute, from a radius of 100 or 200 miles—and seeing the vast possibilities and practical benefits arising from the cultivation and



THE ROMAN CATHOLIC MISSION SCHOOL AT OLD CALABAR.

development of cotton on the broad plantations surrounding their own homes and compounds, now lying idle for want of something to plant therein that could get a market—and when they see how keen are the people at home to take and liberally pay for their own cotton within their own empire—they will go home, after their school training is accomplished, and they, better than all the salaried white overseers that could be sent out, will make use of and direct the vast numbers of labourers that are willing to work (though in their own fashion), and only waiting for the opportunity.

Without this systematic training and teaching of an industry that implies such care and discrimination, how will the poor uncultured negro, left to himself—left to the mere accidental discovery of the proper seeds and the needed species—how will he raise cotton that you of Lancashire will buy! How will that cultivation (without the chiefs taking a universal interest therein) be made abundant enough, and universal enough, and select enough, to supply the one hundredth part of your demands and your needs for twenty years to come!

It takes courage to say these things, but it is the courage of the pioneer that has the absolute conviction of the truth, and the firm belief in the ultimate realisation of his designs.

NATIVE RELIGION: FETISH WORSHIP.

But in order to understand the difficulty of the task that confronts the European agent of civilisation—from either a temporal or a spiritual point of view—it is necessary to have a fairly correct idea of the nature of the native pagan religion, which is popularly known as “Fetish worship,” or, as it is almost universally called all over the western coast of Africa, “Ju-Ju worship.”

It would be a mistake to consider this fetish worship as the adoration of animal matter, either directly or by the medium of symbols. Exteriorly, indeed, it would appear to differ little from the ordinary and vulgar pagan worship of antiquity. But, in reality, there is a great deal of spiritualism to be found therein, after a careful and patient analysis of their practices.

Amongst some of the Western tribes missionaries have found analogies between their divinities and the lesser gods or genii of pagan antiquity, such as Mars, Vulcan, Mercury, Neptune, Venus, etc.

BELIEF IN ONE GOD.

But although, like the ancients, they positively believe in the existence of One Supreme Being—the Maker of the Universe—I do not believe that they have any co-ordinated system, similar to the polytheistic family of the old mythology.

They have no visible symbol or representation of that one great God whom they recognise, though in a vague, hesitating manner, and only readily assenting to it when explicitly put face to face with nature which He created. One thing at least is easily obvious to anyone who goes amongst them for the first time, viz., that they have no form of positive worship towards this Supreme Being. They acknowledge

Him to be essentially and perpetually good, and, therefore, in no need of distinct propitiation. Their great pre-occupation—and in this they manifest a singular tendency to the old Gnostic or Manichean theory—their sole pre-occupation seems to be centred in another Supreme Principle, one always devising evil, and solely responsible for whatever malediction or affliction falls upon them. They seem to be convinced that this latter evil genius, under one or other of the numberless forms which their imagination attributes to him, and which their language variously expresses, is always pursuing them with malign intent. It is this grovelling fear of evil spirits, whom they strive to propitiate—or, rather, whom they endeavour to ward off from their incessant pursuit by various incantations and offerings—it is this fear that lies at the root of African fetishism and ju-ju worship. I should, therefore, not call it by the name of worship. I should rather call it an indirect or negative propitiation.

Idols.

It is true that you will find amongst them plenty of idols, representing not, as many in Europe erroneously believe, any real gods, like those of the Greeks or Romans, but rather the innumerable demi-gods, or forms of the Evil Spirit, whom they dread almost in every circumstance, and at every moment of their life. Almost every article of industry is a symbol, and almost every living thing, outside of man, is a messenger or representative of one or other of these petty divinities; and if, as amongst the Yorubas of the Lagos hinterland, you hear of Oke, the god of the mountains, whose symbol is the stone: or of the Oricba-Oke, the god of fields and agriculture, whose symbol is a long iron bar, and his messengers the bees; or of Champana, the god of smallpox, whose symbol is a large bamboo stick, with red and white spots, and his messengers the mosquitoes and flies—you must not conclude to a semi-divinity like Vulcan or Neptune, but rather to the Evil Spirit, whom they perpetually dread, whether in the mountains, or amongst the fields, or even in the form of the plague.

NATIVE PRIESTS OR JU-JU MEN.

This brief sketch would be incomplete were I not to say that—as all who have visited Africa or read descriptions thereof are well aware—there are in every village fetish or ju-ju priests, of whom the village chief or king is the supreme head. I shall not describe their practices, nor their absurd ceremonies, but shall merely profit of this occasion to answer a question suggested by the mention of this pagan priesthood.

“Have you ever seen any genuine case of witchcraft or of ju-ju incantation that would not imply fraud?” I have never seen anything of the kind. On the contrary, I have had frequent and abundant occasion to conclude that these ju-ju men, without exception, practise entirely upon the ignorant credulity of the poor native, and especially upon that grovelling fear that forms the basis of their religion.



SOUTHERN NIGERIA : OFFERING BY SLAVES TO YOUNG MARRIED COUPLE.

HUMAN SACRIFICES.

They have a firm and universal belief in the immortality of the soul, as may be readily concluded from the importance in which they hold their funerals, and from the different rites that enter into the celebration of the ceremony. It is this belief in the immortality of the soul, or in the life of the departed ones in another land, added to the belief that the latter retain something of their former position, with its habits and its necessities, that accounts for the human sacrifices that are still practised among the natives—at least, in the case of chiefs and persons of considerable wealth. As this position is chiefly estimated by the number of women and slaves that make up their household and their retinue, they must be supplied with enough of both categories to sustain their dignity in the “land of the dead.” It is true that wherever the Government is established, and its administration accepted or recognised, particularly by the creation of native courts under the direction of a district commissioner, these inhuman practices are entirely condemned, and the authors thereof severely punished. But frequently, even in the very midst of an administrative centre—and, alas! more so in remote and populous districts, where the native chiefs still rule supreme, as of old—this slaughter of human beings, especially of young women, children, and slaves, is still carried on, though with the utmost secrecy. To give an idea of the number of these human sacrifices in one particular place, let me quote the report of Colonel Brackenbury, one of the leaders of the Ashanti Expedition, under Sir Garnet (Lord) Wolseley, in 1873 (November):—

“Our principal medical officer, Dr. Mackinnon, was quartered at Coomassie, in the house of the king’s executioner, who paid him a visit on the night of our arrival, and told him that every day he killed two or three people; that he thought he killed at least a thousand a year; and that the number which he had killed in the week preceding our arrival was so great that he could not tell how many victims he had slain.”

INFLUENCE OF CHRISTIANITY.

The numbers killed are now happily not so great as heretofore in any part of the British or French protectorates, owing, more particularly, to the spread of education, and the stringent enforcement of the law and of the customs of civilisation, just as soon as the authorities are made aware of any positive crime or atrocity. Unfortunately, there still exists, amongst the Igbos especially, a deep-rooted and widespread superstition regarding the existence of twin children. Hence the almost universal custom of sacrificing twins within three days of their birth. Happily, however, the influence of Christianity is making itself more and more felt in this respect, and only a year ago last December King Sami of Onitsha, a member of the Roman Catholic Church, convoked a meeting of all the native tribes within his realm, favourable to European influence and civilisation, to discuss and to enact the best means to put an end to the inhuman practice.

KINGLY CUSTOM.

To show the civilising influence of European Christian education in that part of Africa, I may be permitted to say that King Sami, by his fearless and consistent spirit of determination, has broken down that barrier of ignorant and superstitious mystery with which the kings up to that time (1901) had surrounded themselves in the eyes of the simple natives, so that henceforth the king may come forth from the palace precincts to assist at the "white man's" divine service on Sunday without shocking the natives' sense of royal decorum and of corresponding servitude.

EGBOS.

Alas! among the strictly barbarous members of the native tribes, along the Cross and Calabar rivers, and up the left bank (eastern) of the Niger river, there exists a most powerful secret organisation, called the Egbo Society, which, while ensuring absolute secrecy and immunity to its members, is mostly responsible for the perpetuation of inhuman and degrading customs that still smack of absolute barbarism. It is composed of the higher chiefs, and is equivalent to the inner circle of an oath-bound society, or rather to one of the old pagan and semi-religious institutions of Rome and Greece, wherein the initiated practised the most abominable rites. The Government will be, for a long time, unable to put down these Egbo societies, and until this is done the evils of human sacrifice and of cannibalism will not be finally eradicated.

POLYGAMY.

Another great obstacle to the spread of civilisation—at least as understood by Europeans and Christians—is the practice of polygamy. It is very rare to find a chief, at least, who has not from half a dozen to a dozen wives, amongst whom, however, there is always a principal one, to whom all the others are more or less subject. This tendency to a plurality of wives is prevalent everywhere, even among tribes that have not been influenced by Mohammedanism, so that it cannot be considered either as a *proof* or a *consequence* of the so-called spread of the latter form of belief. Even among the Mohammedans there are some features noticeable in their practice of polygamy that render it less shocking than would at first sight appear to our eyes, accustomed to the standards of Christian morality. For instance, they regard their wives as absolutely sacred as long as they bear children, and even until after the children are weaned, which with them means very often the space of a year and a half after birth.

IMMORALITY AMONG NATIVES.

It can, therefore, be scarcely said with any degree of truth that polygamy, either among the African Mohammedans or among the native pagan tribes, is due to an instinct of gross immorality. I rather think it is due to an old tradition imbedded and ingrafted firmly in

their weak and corrupt nature. Really, it must be confessed by those who have gone considerably into the interior that among the pure negroes, removed from all contact with the Europeans, or with the other so-called and partially civilised coloured men of the coast towns, there is very little of what is known as gross or open immorality. Very seldom have I known of a criminal case of rape being brought before the police court or the native court, and when anything of the kind is discovered it is promptly and severely punished. Another proof of this is the fact that it is exceedingly rare to see, even among the young people and children of both sexes, mixing so freely in the streets, meeting along the highways, joining together in their games, the least notice paid to their absence of dress on the one hand, or, on the other hand, a self-consciousness that would denote the knowledge and practice of evil.

PROMISCUOUS DISTRIBUTION OF THE OLD TESTAMENT.

But before I leave the question of polygamy, I cannot conscientiously omit to allude here, though with the utmost delicacy and the deepest respect for the motives that inspire it, to the practice, on the part of some religious societies, of the promiscuous and indiscriminate distribution of the books of the Old Testament. It is undeniable that it has greatly contributed to strengthen among those people, and even to propagate, polygamy. Now that they are learning how to read—and, unless in the very remote interior, you will rarely find a village without one or more young men able to do so—they will only be attracted to the reading of such of those numerous passages of the Old Testament as would tend almost to consecrate that practice in their untutored and naturally corrupt minds, unable yet to discriminate between the *Old Testament in itself* and the *New Testament*, by which it has been modified and supplemented, not to say corrected.

DIVORCE.

Another important question which belongs to this subject is whether they have what we understand by *divorce*, and is it practised to any large extent? To answer this question, it should be said, as a preliminary, that marriage, as it is called "in the native fashion," is entered into by a contract in which rarely affection or inclination plays any great part. It is effected by the payment of a certain price, either in currency or in goods, so that if, later on, the wife finds it necessary or convenient to separate from her husband she may do so by the repayment of the original sum. It is not frequent among the ordinary natives removed from contact with the white man; but practical divorce, whether formal or not, is but too prevalent among the natives, especially the more educated ones, of the coast towns.

Before I leave this subject, I may be asked a question in regard to the diffusion of Mohammedanism. Is it really spreading all over Africa, as has been frequently asserted? Well, there is no doubt that in every one of the great coast towns and colonies from Senegambia to French Congo, especially in Sierra Leone, Lagos, and even Old Calabar, you will find large numbers of Mohammedans, either as traders or as soldiers.

Generally they are finely built stalwart men and women, bright, intelligent, hardy, shrewd, energetic, and most typical in their every feature as a distinct race. But invariably they have come from the North, from the Soudan, from the land of the Haussas, from the great plains of Sokoto and Kano, along the Upper Niger. There are as yet no real native Mohammedans in Southern Nigeria, and, therefore, I would say, whatever diffusion of Mohammedans is noticeable in those parts is only an apparent and extraneous accretion to the native population. But, with all this, it would be unwise to shut our eyes to the palpable fact which forces itself upon the notice of all white men who have spent even but a brief space of time in this part of Western Africa—that the Mohammedans are slowly but surely spreading down along the banks of the Niger. They are, it is true, in many ways a help to the Government, especially by giving their adherents, the Haussas, to the formation of the Nigerian regiments, and by their keen, persevering instincts in the development of trade. But it is not an exaggeration on my part to prophesy that a time may come when the encouragement given to them—sometimes rather unnecessarily and undeservedly—will become a positive danger. For it is well known that wherever they have gained the upper hand in the administration of native tribes and districts they have contributed in an undisguised and even cynical manner either to the increased servitude or to the gradual extinction of these same tribes. It is notorious also that, where there is no fear of being detected, they favour slavery, and practise slave-raiding (though on a very small scale) with as much persistent zeal as in the olden days of unquestioned Arab supremacy.

I have now, gentlemen, sufficiently trespassed upon your patience, and would forfeit further claim to your indulgence, were I any longer to withhold the views of this interesting country, as well as of its inhabitants and their customs, which I intend to throw upon the screen to-night; and I must, therefore, conclude by expressing, once more, the conviction that, in spite of enormous odds and numberless difficulties, the problem of civilisation in Africa is destined henceforth to find an assured and speedy solution.

COTTON GROWING WITHIN THE BRITISH EMPIRE.

By J. HOWARD REED, Hon. Secretary.

[Addressed to the Members in the Library on Tuesday, December 8th, 1903.]

SYLLABUS.—Facts and figures of the Cotton Industry; Our dependence on the United States; Past experiences; Shortage of Cotton and its causes; The need for a British supply; The "Vegetable Lamb of Tartary"; Notes on the Cotton-plant; Cotton fields—picking, carting, ginning; The World's sources of supply; Possible new fields within the Empire—India, East and West Indies, Australia, Rhodesia, etc.; British Cotton-growing Association; Sir Alfred Jones; Experts of the Association; Lagos cotton cultivators; The Industry in Sierra Leone; Native weavers and dyers; East and Central Africa and the Soudan; Hopes for the future.

IN the former part of his address, Mr. Reed referred to the great and important problem before them at the present time, and which was likely to be to the fore for some time to come, namely, the necessity for improving the means of obtaining that enormous quantity of raw cotton upon which the whole county of Lancashire, and to some extent the whole of Britain, depended. The vast importance of the subject to Lancashire would be seen from the fact that the cotton industry employed no less than 450,000 operatives, and it was stated by experts to be the most important business in the whole of the country, next to the all-important industry of agriculture itself.

The export of cotton manufactures alone from Great Britain in 1902 amounted to no less than £70,000,000 sterling. To give a further illustration of the importance of the cotton industry from the point of view of size, the speaker said that the spindles of the world were estimated at 104,000,000, and the looms at 1,350,000. Of these numbers 40,000,000 of the spindles and 650,000 of the looms were in Great Britain.

To run these looms and spindles the country imported £35,000,000 worth of raw cotton, whilst the finished article produced from this amount of material, after their looms and spindles had been applied to it, sold or was exchanged for £90,000,000. The difference, £55,000,000, therefore, formed the money paid in wages and salaries in the industry, and covered the profits. These figures showed the vast importance of the subject they were dealing with.

The spending of the £55,000,000 per annum, a large proportion of which went in payment of labour, must be of vast importance to an industrial country like Great Britain, and especially to Lancashire, the district in which the cotton trade was concentrated.

The whole of the vast industry depended upon an imported raw material, not one ounce of which could be grown in their own country of Great Britain. Of the total supply of cotton, 80 per cent came from the United States, and the remaining 20 per cent was raised from the rest of the world. The American cotton growers, therefore, practically had this industry in the hollow of their hands.

Many of those present would be able to recollect that during the American Civil War the cotton imports failed by 75 per cent, with

the result that 247,000 of the operatives were out of employment, and 234,000 persons had to live on charity in consequence. If in the future, through any cause, the supply of raw material should fail them, as it failed during the Civil War, they would be surrounded at once with similar conditions, only in an aggravated degree, as it would involve more people.

At the present time a considerable amount of trouble, and not a little distress, was being caused by the shortage of the cotton supply. Just recently the country had not been getting a sufficient supply of raw cotton to keep the industry fully supplied.

The cotton shortage was due to several causes. The first and greatest cause was the large increase in the use of raw material by the Americans themselves. They must remember that previous to the American Civil War, and for a long time afterwards, the Americans only produced the raw material. Now, year by year, they were manufacturing more and more cotton themselves, for their own market, with the result that there was less and less raw material to spare for this country. We might depend upon it that with the rapid strides the American people were making in the direction of industrial progress, and by the increase by leaps and bounds of their population, the time was not far distant when America would require all the cotton they grow to supply their own mills, and then where would England be if it had not other places to turn to for its cotton?

Other causes of cotton shortage Mr. Reed instanced were the diminution in the increases of land periodically put under cultivation for cotton growing, and the "cornering" tactics of American speculators. Such tactics as those of the American "corner" clique ought to be broken down.

Another cause mentioned by the speaker was the destruction caused by the cotton weevil, the grub or insect that preyed upon cotton, and whose ravages ruined acres of cotton areas.

As proof of the vast increase that the American cotton manufacturing industry showed, the speaker pointed out that since 1892 the American cotton industry had increased its demand for raw material by 60½ per cent, whilst England had only increased her need for raw cotton 2¼ per cent.

Mr. Reed showed clearly that the efforts of the British Cotton Growing Association were meeting with considerable promise of success. They have sent experts to various West African Colonies with very satisfactory results. Only recently he was told by the President of the Association that 250 bales of cotton grown in Lagos had been sold in Liverpool at a very satisfactory price.

Great attention was being given to the new industry in Sierra Leone, Gambia, and Southern Nigeria, and the governors of the various colonies mentioned were doing all they could to back up the work of the special experts sent to their districts.

In British Central Africa some thousands of acres were now under cotton crop, and already a small supply had been sent to this country. In East Africa experiments were being carried out with much success.

In Rhodesia the Chartered Company were giving attention to the matter. In the West Indies a very fine quality of Sea Island cotton was being grown, and there was promise of great success with the

industry there. Queensland, Australia, would probably be able to help materially.

The new Nile dams, by bringing more acres under cultivation, would increase the supply from Egypt. The Soudan, in the neighbourhood of the Blue Nile and Sobat Rivers, affords millions of acres of territory specially suitable for the growth of cotton; but, as Lord Cromer had pointed out, this district could not be properly utilised for the industry until the Suakin to Berber railway, now under survey, was completed.

Although the matter of cotton growing within the Empire had only been seriously considered for about twelve months, and although much in the way of inquiry and experiment remained to be done, there was every reason to hope that in a few years large supplies of various grades of cotton would be regularly coming to this country from the different British colonies. West Africa gave special promise.

There was every reason to be satisfied with what had been done, and to hope that British supplies would in a few years be sufficient to make up for the shortage of the supply from America, and perhaps to take its place altogether. Meanwhile the efforts of the Cotton Growing Association, which was making a truly Imperial effort for the good of the Empire, and especially for the great industry of Lancashire, had not received the support it deserved from those who were intimately interested in the supply of raw cotton. The manufacturers of Lancashire, and the various industrial and educational associations which were largely dependent upon cotton, should certainly do something more than they had hitherto done to strengthen the hands of the British Cotton Growing Association by subscribing to its funds, and thus helping forward the good work.

Mr. Reed's address was copiously illustrated with lantern slides, which included pictures of the cotton plant in its various stages of growth, views of cotton fields with the pickers at work, and numerous photographs of scenes and people in the various colonies interested in the industry of cotton growing.

A TOUR IN AUSTRIA AND HUNGARY IN 1903.

By J. MURRAY MOORE, M.D., F.R.G.S., etc.

[Address delivered to the Society in the Coal Exchange on Wednesday, October 12th, 1904, at 7-30 p.m.]

THE facilities of modern travel are now so advanced that my friend Mr. O. and I covered 3,600 miles, including by-path trips, on our continental tour in August, 1903, without unusual fatigue, and with only one night occupied in actual journeying, viz., crossing from Harwich to the Hook of Holland.

The subjects of my lecture—Austria and Hungary—form only a part of our programme, and I shall be pleased at any future time to bring the rest, comprising Nuremberg, Frankfort, Mayence, the Rhine, Cologne, and Ostend, before this Society. Buda-Pesth, the objective point of our journey, is not yet too well exploited by the average tourist, and the innumerable features of interest in Hungary may well take up an evening. The sixty-four slides I shall exhibit have been taken specially for this lecture by Messrs. Flatters and Garnett, and the panorama views are my own invention, an unsurpassed method of displaying a large area of scenery to an audience without distortion and in full perspective.

Leaving Harwich at 10-30 p.m. on Saturday, August 1st, we reached the little Dutch village called the Hook of Holland at 6 a.m. next morning, after a calm passage; thence proceeding by express right on to Hanover, where we enjoyed our Sunday rest. Next day found us at Dresden, the handsome capital of Saxony (a view of which I show you), justifying its name of "the German Florence." From Dresden a romantic railroad through the Saxon Switzerland, following the Elbe, and then the Moldau, brings us to Prague, which we will examine in some detail.

Bohemia, of which this historical city is the capital, is the richest province of Austria, and has been the scene of more battles than any other country. Ever struggling to be free, it has never succeeded, and its very stones, could they speak, would cry out for mercy or for vengeance.

The city of Prague has endured six sieges and one foreign occupation. In this city the Thirty Years' War began by an act of violence in 1618, and here it ended in 1648, when the Swedish army retreated from the gates. Here the great Hussite revolt against Rome began, flourished for half a century, and was extinguished in blood and fire. The main features of old Prague are well preserved, as you will see by these seven views, comprising the powder tower, the famous bridge, the towers at each end, the fine pile of forts, palaces, cathedral, convents, mansions, and Government buildings collectively called the "Hradschin." The Bohemian National Museum is worth seeing for its Hussite relics, its autographs, its rare minerals, and its lifesize groups of peasants in characteristic dress and surroundings. From Joachimsthal mines comes *radium*, 3,000 times more costly than gold. Here, too, was first coined the "*thaler*,"

the ancestor of the dollar. Next we explored the Jewish antiquities of Prague—the oldest synagogue in Europe, and the oldest cemetery, dating from 590 A.D. Lastly, the Teyn Kirche, where the eloquent John Huss preached with such success as to convert king, queen, and nation to his doctrines (Protestant in fact, though not in name); and where the Danish astronomer Tycho Brahe's body reposes.

The Czech language spoken in Bohemia is Slavonic, and very difficult to learn. But the intense nationalism of the Czechs leads them to exclude even German from all street names, public notices, etc., much to the inconvenience of visitors.

The story of John Huss was then briefly narrated, and a slide of the central figures in Brozik's great picture, painted for the City Council of Prague, was shown. The subsequent history of the Hussites was traced down to the present day, their religious descendants being the devoted and blameless Moravians.

A journey of 250 miles brought us through Brünn, the capital of Moravia, to Vienna. An introduction to the English manager of the Gresham Assurance Company secured for us not only a warm welcome, but a rapid and easy tour round all the chief sights. St. Stephen's Dom (cathedral) is unique in some features—the coloured tiles of roof, the detached lofty tower, etc.

Photos were shown of the grand palaces, theatres, museums, and churches; the Parliament House, where the Donnybrook rows take place between Czech and German, Semite and Anti-Semite, Clerical and Socialist; the Gothic Rath-haus; Schronbrünn; and the Leopoldenberg, overlooking 900 square miles of scenery.

Down the Danube by steamer to Budapest occupies thirteen hours, and is extremely interesting if one reads up the historical events connected with the places passed—Pressburg, Gran, Komorn, Vacs, for example. A splendid panoramic view of the twin city capital of Hungary—old Buda on the right and modern Pesth on the left—is seen as the Vienna boat turns a corner of the Danube, and moves up to its wharf at the Franz Josef Quai. We had never seen a more fascinating sight than Buda and Pesth lit up by electric lights innumerable, the castles, towers, and wooded hills of the former and the magnificent structures of the latter bathed in the silvery light of a full moon, while the majestic blue-grey Danube rolled between. Nor did the scene in full daylight belie the glamour of the previous night. Budapest, now a city of 700,000 inhabitants, is to a Briton as if the Westminster and Hyde Park districts of London were confronted across the Thames by Edinburgh Castle and gardens, the Matlock hills forming the background.

Views were exhibited of Buda's Royal Palace, the palace gardens, St. Matthias church; on the Pesth side, of the new Parliament House (truly a new style of decorated Gothic and Byzantine, with orientally lavish colour inside), high courts of justice, Hungarian officers, and beautiful ladies in Andrássy Street; portraits of Count E. Zichy and of an Hungarian countess in full court dress, and a diagram of some common words of the Magyar language, showing its total dissimilarity to any of the European tongues. (Dr. Moore has since ascertained from Vambery's researches that "Magyar," pronounced "Modyar," is founded upon the Chagataic dialect of Eastern Turkish.)

After brief descriptions of Budapest industries, commerce, and institutions, the lecturer took his audience to the Carpathians, *viâ* Kaschau, whose cathedral is very fine, and was most picturesque on August 15th, the Festival of the Assumption, from the costumes of the Magyar peasantry, six slides of whom were thrown on the screen. A local exhibition of Rákocsy relics, etc., interested the visitors in this national hero, who, in 1703, raised the first revolt against Austria. The Carpathians are a primitive mountain range of Europe, built up of granite, gneiss, limestone, and sandstone, stretching for 800 miles from Pressburg on the east to Orsova on the west, forming a huge arc, the chord of which is the River Danube. Their average height is 7,000 feet, but the "Hohe Tatra," which we visited, has a summit, *Gersdorfer Spitze*, of 8,700 feet. The Carpathians form a watershed between the Baltic and Black Seas, and an effective barrier against invasion from north to south.

From Kaschau to Poprad, at the foot of the Hohe Tatra group of the Carpathians, we traverse characteristically Hungarian country. A fertile corn-growing valley, 100 miles long, reveals the core of Hungary's prosperity—its wheat, which produces the richest flour in the world. Only Budapest can vie with Minneapolis, U.S., as a milling centre. Tobacco also thrives on these sunny uplands. The hardy women, sun-browned, and kerchiefed in bright colours, work in the fields, shod with Wellington boots. Military conscription laws compel female agricultural labour. At Uj-Tatra-Fured, a Magyar Marienbad, we meet a polyglot crowd, and are greatly pleased with the weird and bewitching gypsy music. You must go to Hungary to hear it in perfection. The national instrument is the *cimbalom*, a stringed instrument, like the wires of a piano; four to five octaves in compass, played with two hammers padded at the ends. The leader of the band of five, six, or eight performers is a nature-taught violinist, and when you have one of the best of them you no longer wonder that Hungary produces so many great solo artistes. The *csárdás*, the national Magyar dance, begins with slow plaintive arpeggio chords in a minor key, producing a curiously impressive effect; then changes into a brisk march; and winds up in a very quick movement, which is most exciting.

A professor of Budapest University, Professor Honti, who spoke English fluently, made our acquaintance, and showed us the best excursions in the mountains. He knew all our best writers, and capped all my Shakspeare quotations with ease. (Two panoramas were here shown of the Carpathians, and five of L. Csorba, an exquisite Hungarian Grasmere of this district.)

Returning by a different route to the capital, we found we had accomplished a round trip of 518 miles for the moderate fare of two pounds apiece, thanks to the Zone system. Having visited the Arts and Industries museum, the Basilica or cathedral of Pesth, the hill-country at the back of Buda, etc., we left by express for Vienna (four hours), full of admiration for Hungary and the Hungarians.

From Vienna we travelled homeward by Linz to Nuremberg; thence to Frankfort; thence to Mayence; down the Rhine to Cologne; thence to Ostend; and back to London and Liverpool, *viâ* Dover.

SICILY.

BY MRS. L. F. GALEOTTI (*née* ETHEL HEYWOOD).

[Addressed to the Members in the Coal Exchange, Market Place, on
Tuesday, November 8th, 1904, at 7-30 p.m.]

SICILY, the largest of the Mediterranean islands, has an area about twice that of Yorkshire. Its geographical position has made it in the past the battle-ground of the nations, the bone of contention between the races, the link between one civilisation and another. It lay at what was for centuries the centre of the "known world," and, being exceedingly fertile and pleasant to live in, was coveted in turn by every nation round the Mediterranean. It has been written of by poets far back to the time of Homer, and some of the most beautiful legends of the Greeks are woven around its hills, rivers, and fountains. Linked with the legends of nymphs are others of the powers of the nether world, the outcome of experience of the wonders of Mount Etna, of the mud volcanoes and the hot springs.

At the present day Sicily forms part of the Kingdom of Italy, but its inhabitants betray, by their speech, manners, and appearance, ancestry of a very varied kind. Almost all the nations who in the past have had relations with Sicily have left something behind them—Greeks, Carthaginians, Romans, Vandals, Goths, Arabs, Normans, French, and Spaniards—their blood still runs in Sicilian veins, as it once ran on Sicilian soil.

Palermo, the present capital of the island, was in ancient days one of the Carthaginian colonies. It has a splendid harbour—formerly even better—and here some fine morning in April, after a twelve hours' passage from Naples, your ship drops its anchor in perfectly calm waters, under the shelter of the fine headland, Monte Pellegrino, which is the most prominent feature in every view of Palermo. As we landed in small boats, I heard a German asking excitedly if it were Mount Etna. The town itself is large and pleasant. Along the bay runs the fine wide road, the Foro Italico, spoiled only by the smells of bad seaweed and drains, which the tideless Mediterranean is powerless to disperse except in rough, windy weather. The more familiar you become with the bay of Palermo, the more it suggests the bay of Llandudno. The Great Orme's Head, though not so fine, certainly resembles Monte Pellegrino in formation.

On the far side of the mountain is a cavern in the limestone, which is the goal of the pilgrims after whom the headland is named. Here were discovered the bones of St. Rosalia, which miraculously stayed a plague when carried into Palermo. They now lie in the Cathedral,

and scientific men have pronounced them to be the bones of a goat, but without disturbing the faith of good Catholics. The cavern now contains a recumbent statue of the saint surrounded by native trinkets, including a jewelled pendant from the Italian Queen-Mother. But more interesting is a deep rocky basin full of the purest and most transparent water, collected by means of a network of gutters from the dripping roof.

Thanks to the needs of pilgrims, there is a good paved path up the mountain, practicable for mules and donkeys as far as the cavern. If you are very firm you will be allowed to walk, but will be considered quite mad. No Sicilian woman with any pretensions to gentility would demean herself by walking out of doors; we have found it necessary not only in Sicily, but in other parts of Italy, to drive in order to ensure the presence of the man with the key, who has a habit of disappearing when he thinks he will have to walk, and only coming home when the danger is over.

From the top of Monte Pellegrino, Mount Etna's white cone is visible far away, and with the aid of the telescope of the obliging coastguards the steam from the crater's mouth can be seen.

The country which lies around Palermo, between the sea and the hills, is called the Golden Shell, because of its great fertility. The gardens are full of palm trees of every kind, and in the Botanical Gardens we can see the tropics represented on a small scale; india-rubber trees grow there, and clumps of papyrus, groves of grotesque cactus, and trees in flower with strange names and foliage. The chief product of the country round the city is lemons. In early April, when the final gathering takes place, every lemon grove is full of golden heaps of fruit, which the peasants cart into the town for sale and export. All the common Sicilian carts are built according to one pattern. They are painted bright lemon colour, and the notches of the wheels are picked out in blue and scarlet. On the side panels are painted scenes from Sicilian history or from the Bible, with knights in armour riding on prancing chargers. The donkey wears harness trimmed with scarlet and blue wool. The carts are often so splashed with mud that no colour can be seen, for Sicilian lanes are very bad and full of holes and hillocks. They sometimes try to mend them by pouring liquid mud into the holes, and trusting to Providence to harden it all in good time. It is quite a new experience to drive along one of these smaller roads; the bumping and splashing is continuous, and you reach home tired out as well as black and blue.

After the Neapolitans, the Sicilians seem very charming and polite. They cheat you with such a smiling face that it becomes almost a pleasure to be defrauded. They are not outrageous in their demands. One is prepared to pay double what an Italian would pay, but four times the proper price exasperates even the defenceless female foreigner. On the whole the Sicilians are honest and even generous. They are callous, like so many Italians, and in the streets of Palermo may be seen sights to parallel which in England one would have to visit the shambles and the accident ward of a hospital.

Palermo Cathedral was built by the Normans and their Archbishop in the twelfth century. This priest was an Englishman—Walter of the Mill—Gualtiero Offamilio, as he is called in Palermo. There is much

in the carving and ornament of these doorways and cornices which reminds us of the Norman work in the churches of England, and it is unlike what we see elsewhere in Italy. A hideous dome, which is quite out of keeping, was added during the eighteenth century, much against the wishes of the Sicilian architects; its removal would much improve a beautiful and unusual building. Inside it are the red porphyry coffins of three of the most remarkable people in the world—Roger the Second, King of Apulia and Sicily, the greatest monarch of the twelfth century; his daughter, Constance; and her son, Frederick the Second, who was called "The Wonder of the World." Constance is remarkable, because it is not given to every woman to be the daughter of one world-renowned man and the mother of another.

In wandering about the outskirts of Palermo you come to the Capuchin Church, below which, in an immense crypt, are stored the mummified bodies of about 8,000 of the better-class inhabitants of Palermo. The bodies were kept in vaults until they were dry enough to be brought out and hung up in the crypt for the relations and friends to come and visit. In the chests are other bodies, and in the boxes with wire-netting fronts are the women and children, some of them dressed in lace-trimmed garments, with wreaths of artificial flowers and white cotton gloves. You really do not know whether to laugh or to cry when you look at them. This method of disposing of the dead is now prohibited, and in time all these people will crumble away. Even now the sacristan says the rats are at work, and now and then a head falls off and rolls about the floor. There are four of these passages, forming a square, and a very ancient monk shuffled round them in front of us, looking neither to the right nor to the left, and never turning round to see how we were bearing it. It was beginning to grow dusk, and we were the only three living people present. It was all we could do to keep in the middle of the path, so as not to touch anybody and upset their balance. However, all went well, and we arrived safely above ground again, where there is now a nice wholesome cemetery with grass-grown graves, flowers, and cypress trees.

Monreale, a village a few miles from Palermo, contains a large and splendid church, full of the mosaic work done by the Normans at the end of the twelfth century. No less than 70,400 feet of wall space is covered by this most magnificent and enduring decoration. An immense Christ fills the half-dome behind the altar, the walls are covered with scenes from the lives of Christ and the Apostles, and prophecies from the Old Testament, to name which would be to pass an extremely stiff examination in Scripture. The mosaics of Sicily can be excelled nowhere in Europe, and only approached at Ravenna; in North Italy.

In the Capella Palatina, the small chapel of the Royal Palace in Palermo, we have a perfect gem of mosaic and beautiful marble. There is no part of the interior that is not enriched by these means. The workmanship of these Sicilian mosaic artists is still unequalled at the present day. The form of the stilted arches shows the strong influence which the Saracen occupation had upon the art of the Normans in Sicily. Though they wrested the government of the island from the Saracens they had to accept their culture.

But in thinking of Sicily the Greek will come uppermost, so to the Greeks let us pass on at once.

Segesta may be reached from Palermo by rail, and then by carriage. Three or four years before we visited it parties had to be accompanied by a mounted escort, so it may be interesting to describe the terrors of the journey.

The most formidable one, to my mind, is getting up at half-past three on a pitch-dark morning. Everyone knows the anxious hourly wakings and wonderings about the weather which an undertaking of this kind entails. By the time we reached the station, however, to catch the quarter to five train, it was fine and sunny, and as we steamed along between hedges of red and pink geraniums and roses, aloes and cactus, and then along the beautiful gulf of Castellamare, the terrors vanished away. We had telegraphed the day before to Castellamare for a carriage to meet us, and when we reached the station we beheld it waiting. My only regret is that I did not take its photograph as it stood, for both horse and vehicle were unique. There were two narrow little seats, with no backs, one for us and one for the driver, and we had to climb up the wheels to get in. The horse was beyond description, and must be left to the imagination. Once on the high road to Segesta, we found out that the creature did not know how to run, and nothing would quicken its pace beyond a walk. We had plenty of time to admire the country, and the peasants in their picturesque carts, or on horseback—men riding, women walking—but it was very galling to be whistled at, to make room for a mule and a cart of wine barrels to go past at an enviable trot. I made a long list of the wild flowers we saw in the valley, and we had ample leisure to observe and classify each one as we passed by it. It took us three hours to drive the eight miles to the River Scamander, where we got out. There was not a house to be seen, yet somehow when we reached the river bank there were boys ready to help us over. There was no bridge—only some unsteady stepping-stones and a few sandbanks. When the river is high, people have to be carried over—or perhaps cannot get over at all. We climbed up a rough path—boys appearing from nowhere all the way—and at last came upon the Temple.

Anything more beautiful I cannot imagine. The day was perfect, the masses of purple and golden wildflowers were dazzling, and the situation in the heart of the mountains unsurpassable. The Temple is singularly perfect, every column standing, but it was left in an unfinished state by the Greeks more than two thousand years ago. One of the cruellest and most bloodthirsty of the Sicilian tyrants, Agathocles, was returning from a disappointing campaign in Africa, and, although on friendly terms with the people of Segesta, the temptation to wreak his disappointment on somebody on the way home was too great to be resisted. So he stopped at Segesta and inaugurated a massacre. Down by the river, where the stepping-stones are, he roasted the people alive in brazen beds. Others were taken away as slaves, and the remainder put to the sword. The town was absolutely emptied of inhabitants, and the building of the Temple thus for ever interrupted.

By birth the people of Segesta were not Greek, but Elymian—one of the races in Sicily at the time of the coming of the Greeks. No Greek colony was founded so far away from the sea, the great avenue of communication with the world. The people soon became entirely Greek by culture.

This temple shows us that the fluting of the columns was one of the latest operations performed in the building of a Greek temple. Rough prominences were left on the large stones to make the handling of them easy until everything was finished, then they were squared away. These prominences still remain all along the blocks of the podium.

This temple belongs to the Doric order of architecture. Its columns are strong and massive, resting without any base upon the ground, and they have at the top a simple cushion-like capital. They stand all round the temple, 8 feet apart, six at each end and fourteen at each side, counting the corners twice. The Greeks were extremely sensitive to beauty of form. And they knew that the merest trifles were important, producing upon the eye a pleasant or unpleasant impression. For instance, they knew that great pillars like these, if they were made to taper quite straight to the top would appear thin in the middle, so they tapered them in a slight curve. Another thing the Greeks did was to make the base of the temple very slightly arched from end to end. When you lie down with your eye to one of the long steps, you will find you can only see as far as the middle, which is the top of the arch. You might think at first that this was accidental, but such is not the case. It was all carefully calculated and carried out. There is also a slight inward tilt of all the columns, which gives an air of security and strength, and prevents the entablature from seeming to press its supports outwards. The actual workmanship is excellent. Although these stones have been standing for twenty-two centuries, many of the joinings are hardly discernible, and though the columns are built up drum upon drum, they have not the slightest appearance of separating into parts, although in places the stone is very much weather-beaten.

Inside this colonnade was the real temple where the god was supposed to dwell. At Segesta this inner part, or cella, was never built, and because of the unfinished state of the interior the columns seem to be resting upon pedestals, which, of course, a Doric column does not do. When we see some of the other temples we shall realise what an immense improvement the flutings were to the columns. They broke them up into lines of light and shade, and did away with the slightly-bloated look which these columns may seem to have, though I cannot bear to find any fault with this magnificent building.

An old man lives in a cottage under the hill, and keeps guard over the temple by order of the Government. He keeps the boys at bay, so that we may take our mid-day meal in peace; for, unhappily, one must eat, even in places like this, and the most beautiful things are not quite as beautiful when you are hungry as they are when you are not.

There is nothing now to be seen of the ancient town, but on the little hill in front of the temple are the remains of a small Greek theatre. From it you can look back along the valley which leads to

Castellamare, and see the road winding away towards the sea. The view is magnificent, and I should imagine the audience in the top seats found it difficult to attend to the performance when such a panorama was spread out before them.

The wonderful quadruped that brought us here took us back along the winding road at the same incredible speed as before. The driver met a friend, and we had to wait while they gathered beans, which they call fruit when young and green. They politely invited us to accept some, which we did, and found them nice and cool, if not much else. Though we had only three hours before us we managed to catch the train on to Castelvetro, where we spent the night. If anyone present thinks of visiting Segesta, I should suggest that they descend at the station of Alcamo-Calatafimi, and try the conveyances there—but, of course, our horse will be dead by now.

The ruins of Selinunte or Selinus lie on the seashore about seven miles from the town of Castelvetro. We are now on the south coast of Sicily, having crossed the western point of the triangle. At Castelvetro we secured a carriage with two good horses, and travelled quickly over the white road between hedges of aloes and cactus and pink geraniums.

In old Greek times Selinunte was a very important city indeed, and occupied three small hills on the edge of the sea. The ruins of seven great temples lie scattered over them, about which so little is known that they are denoted only by letters of the alphabet. Temple "C" lies, with three others and some ruined streets and houses, on the central hill or Acropolis. The columns have fallen as if mown down by a scythe, and lie parallel to one another, but entirely split into pieces. For this reason it is supposed that much of the destruction of the city was due to an earthquake which took place in ancient times. This seems to account for the total ruin of the whole town; for, though the Carthaginians destroyed the place in 409 B.C., they could hardly have devastated it so utterly. The Greeks named the town after the wild parsley plant, which still grows abundantly, as it has done for twenty centuries, among the little wild palm trees of the cliffs.

We are reminded of the story of Timoleon—the greatest and worthiest name ever associated with Sicily—on the eve of the great battle with the invading Carthaginians. He and his army suddenly came upon some mules laden with parsley, and a kind of panic came upon the soldiers when they remembered that with this plant it was usual to decorate the sepulchres of the dead. Timoleon, however, made himself a crown of it, and, setting it upon his helmet, reminded them in a loud voice that with the parsley were also crowned the victors in the games, and that the omen to them was one of victory. The soldiers, with their confidence restored and parsley in their helmets, fell upon the Carthaginians and defeated them utterly.

Leaving the Acropolis, we pass to the eastern hill, which was occupied by three great temples. Their ruins lie in the middle of a field of corn, and are now nothing but confused heaps of masonry. The most remarkable of the three is the Temple "G," which is supposed to have been dedicated to Apollo. At the time of the Carthaginian invasion some alterations were being carried out in this temple. They

were, in fact, building a new and immense erection outside the old one, which still can be traced among the piled-up ruins. This new temple was to be the largest in Sicily. It would take seven men with outstretched arms to measure the columns; and the flutes, which have been begun on one column only, are wide and deep enough to hold a man standing as in a niche. One of the immense capitals shows very well how the flutings were indicated at the neck of the column from the first, although not followed down until later. Among the ruins of these temples have been found very important sculptures in high relief—now in the museum at Palermo. Some are very stiff and archaic, dating from about 600 B.C.; others are of the best period of Greek art, about 200 years later. They are carved out of rough stone, but the faces, hands, and feet of the female figures are made of fine white marble. On many stones here, and in the museum, distinct traces of red and blue paint can be seen.

As I have said before, the alteration of this temple was in full swing when the Carthaginians fell upon the city and destroyed it. The people had no news of the invasion until the enemy was only a day's march away, and then everything was abandoned for the work of defence. After nine days' constant fighting the city fell, and then followed a general massacre and making of slaves.

This happened in the year 409 B.C., and one of the strangest sights in the whole island is the quarry where the workmen were cutting the stone for the great temple, and where the hewn stones stand to this day. A great drum for one of the enormous columns is there, rounded out from the rock, so that a person can pass round it; and a second drum is cut out behind it, but is still secured to the rock at the bottom. The measurements correspond exactly with those of Temple "G," and they were no doubt intended for that building.

The quarry is about eight miles from Selinus, and almost all the way there can be seen blocks of stone dropped in transit by the quarrymen, and never moved again.

The modern road does not run direct from Selinunte to Campobello; we were obliged to return to Castelvetro, and leave again by a road running towards the west. A visit to the two places takes a long day. Tourists in Sicily generally omit to visit Selinus because there is none of it standing; but there is no place more interesting, and, though the country is very flat, it is very attractive on a brilliantly fine day, with the blue Mediterranean rolling in close by on the smooth sand, and the white sails of the sardine fishing boats dotted over it.

The hospitality of the people in the inn at Castelvetro was most delightful, and the cleanliness remarkable. The streets of the town are not paved, but are of hard earth. They have a little municipal theatre in the Doric style, which has been standing unfinished with a hoarding round it for thirty years, waiting for the money to finish.

We had a talk with our guide and driver on the subject of brigands. He was much grieved and hurt to hear that there were people in England who believed the Sicilians capable of hurting any English person, especially a signorina. Brigandage, as a matter of fact, has nothing to do with the insignificant, unimportant traveller. When a band has taken to the mountains it is the landlords and people of influence who have to be careful, for the Mafia protects and sides with

all Sicilians who oppose authority. This resistance is traditional. A clannish spirit binds all born Sicilians together by a strict code of honour, as they regard it, and it is their inherited instinct to defy the laws a foreigner tries to impose upon them. Italian statesmen say it is impossible to govern Sicily; and Rudini and Crispi were themselves Sicilians, and so ought to know. In Sicily there is no salt tax, though in Italy you pay for every bucketful you take out of the sea.

From Castelvetro we telegraphed for a carriage to meet us at Trapani and drive up to the summit of Monte San Giuliano, the mountain on which stood the ancient town of Eryx, with the famous Temple of Venus. To reach Trapani, you cross the south-west corner of Sicily, which is very flat, and pass Marsala, where the wine comes from. The whole station is piled with casks and surrounded by the great warehouses of the English firms who make wine, and you can smell it half a mile off.

When we arrived at Trapani the *sirocco* was blowing. It is difficult to describe how unpleasant this is. It is a south-west wind which blows from the African desert. It is very hot, very full of desert sand, and very violent. The little town is gradually losing its inhabitants, and whole streets are falling into ruin. It is not to be wondered at, for there is no longer any reason for living on the top of a hill 2,465 feet high, with a steep zig-zag road, up which it takes a carriage and three horses two and a half hours to climb.

On a fine day the view must be superb. Sometimes they see Cape Bon in Africa. Down below lies Trapani, with its sickle-shaped neck of land enclosing the harbour, surrounded on the landward side by square tanks into which sea water is pumped by windmills, and salt obtained by evaporation. Salt is a Government monopoly in Italy: but, as I said before, there is no salt tax in Sicily.

From Trapani we retraced our way to Palermo by rail, and thence cut across the island, through the desolate country of the sulphur mines to Girgenti, the ancient Akragas. In the old Greek days Akragas was a very large and beautiful city, famous for its horses and the extravagance of its inhabitants. The Carthaginians took it, sacked and ruined it, but later the Romans colonised it and called it Agrigentum. To-day its attractions are its ruined temples, which stand in a line on a cliff about two miles away from the modern town, and about an equal distance from the African sea.

The only hotel where strangers can stay in comfort lies out near the temples, surrounded by olive and orange trees. It is quite strange to wake in the morning and hear birds singing, instead of men and boys howling and carts rattling in an Italian street. It is pleasant to find, too, that there are still birds left alive in Italy, for almost everybody has a gun and aims at anything that flies about. You see even station masters running about on the railway line trying to shoot thrushes in the *eucalyptus* trees.

Girgenti stands on a hill which was the Acropolis of the ancient Akragas, and it is inhabited by the most inquisitive people in Sicily, after Trapani, which is even worse. On the Sunday afternoon when we walked up to the town to look about, we at once became the centre of a mob of people, chiefly small boys. Twenty-six of them came with us into the cathedral, and when we escaped from them into

a café, they waited outside and watched. Fortunately a band of music appeared upon the scene, and this superior attraction drew them off.

The stone of which the temple of Juno Lucina, as it is called, is built is a beautiful golden colour, marked with red and black blotches, where archæologists say traces of fire can be detected. Like Selinunte, Girgenti was destroyed by the Carthaginians, after an eight months' siege. The small temple is of the best Doric period. Its columns are only 21½ feet high, while those of Selinunte would have been 53 when still standing.

The reason why the so-called temple of Concord seems to have suffered less than that of Juno is because it was repaired and used as a church during the Middle Ages. Greek temples face east and west, as do Christian churches. The idea was that the Deity should face the dawn. At the west end the stone of the columns is being eaten away by the sirrocco wind, and, unless soon repaired, will fall to pieces.

There is nothing at all left standing of the great temple of Zeus, and though its form can be traced, we can only guess at what it looked like when it was new. It is certain, however, that it was quite different from all the other temples, and was one of the few buildings erected by the Greeks in really bad taste. It had no detached columns outside; but inside, either to buttress the wall or to support the roof there were a number of immense figures bearing the masonry on their heads and upraised arms.

The reason why so little of the temple remains standing is that the blocks of stone have been removed to make the harbour of the little port not far off—a little port from which great quantities of Sicilian sulphur are sent out into the world, moulded into great square blocks, varying in colour from a beautiful primrose to dirty yellows and greys.

An old gentleman with a donkey told us that he was a drawing master, and pointed out a solitary house near the sea in which he lived. We wondered who he could find to teach. The bags slung over his saddle were worked in worsted with red and black devils, which did him great credit if they were of his own designing.

Girgenti is a happy hunting-ground for the German archæologists. We have to thank them for setting up again the little corner of what is called the temple of Castor and Pollux. They have used pieces of two separate temples, but they have certainly made a very picturesque little bit of it. On the columns and on the drums can be plainly seen the remains of white plaster or stucco. In Athens and in Greece marble was used to build the temples, but the Sicilian Greeks could not get marble, so they had to use common limestone or travertine, and cover it with fine white plaster to hide the inequalities of the stone, and to make it look as much like marble as possible. We know too that they used green, blue, and red colour and gilding; but they did this also on their marble buildings—the great Parthenon, at Athens, for example—so that we can hardly imagine what they looked like when they were new.

Behind this temple, in the dark trees, grow the most delicious blood oranges, which are just in perfection at the end of April. At

the instigation of the drawing master, a little girl ran and brought a great apron full, for which she received about fourpence.

Before leaving Girgenti we might recall one incident in connection with Phalaris, who was the tyrant of Akragas about 600 B.C. It shows very well the kind of thing that was done about this time by the men who obtained power and came to rule over the chief cities. Phalaris invented a way of getting rid of inconvenient people. He had a great bull made of brass, into which these victims were put and a fire lighted beneath. Their cries would then seem as the bellowings of the bull. The legend goes, and we hope it is true, that the first to suffer was the man who made the bull, and that finally Phalaris himself met his end inside it.

We now come to the most important of all the Greek cities of Sicily—Syracuse. We do not wonder at colonists selecting this spot upon which to found a city. There was first a point of land, almost an island, with a spring of excellent water, and there was a great natural harbour in which a whole fleet might ride at anchor. No wonder, then, that Syracuse rose to great importance, and finally, in 415 B.C., came into collision with Athens itself. The story of this war is a long one, and has been inimitably told by the Greek historian Thucydides, but the main points are that it all began with a squabble between the towns of Segesta and Selinus. Syracuse took one side, and Athens was tricked into taking the other, and sent out a great fleet and army to fight Syracuse. The Athenian general frittered away his time and wasted his chances, and after a good deal of desultory fighting the final engagement took place in this great harbour. The Athenian ships got in, and could not get out because the Syracusans held the narrow mouth of the harbour. There was no room to manœuvre the ships properly, and the fight was at very close quarters. Finally, the Athenians were beaten and tried to get away. They were obliged to land on the shores of the great harbour, and after retreating bravely and painfully, harassed by the Syracusans all the way, one division was captured in a difficult piece of ground, and the other was cut to pieces in the bed of a river, where the Athenian soldiers, maddened by thirst, had stayed to drink.

The remnant of this great army was brought back to the Syracusan quarries to die. With their high perpendicular walls, they formed very effective prisons in which to confine large numbers of men, and here by far the greater number of 7,000 wasted and died. This quarry is known as the *Latomia del Paradiso*, and it contains a curious cavern of later date excavated in the rock and called the *Ear of Dionysius*. Tradition says that in this place Dionysius used to confine political prisoners, and owing to its peculiar form, resembling that of the ear, every word that they uttered could be heard in a gallery at the back of the cavern, which was hidden by the darkness. The echo at the mouth is certainly most remarkable; the sound of a piece of paper being torn, returns magnified in a loud crash. At the bottom of the quarry there is abundant vegetation, and here, where the Athenians died centuries ago, grow bushes of roses, bearing abundant flowers, and fruit trees of all kinds—oranges, lemons, pomegranates, and many others.

The most important ruin in Syracuse is the Greek theatre. It is

one of the largest ever built, and contains about sixty tiers of seats, all looking towards the sea. This theatre was used only for dramatic representations. The Greeks never indulged in the disgusting spectacles which delighted the Romans in their amphitheatres. Their pleasures were more intellectual and beautiful, and the Syracusans were especially fond of a drama. Browning, in one of his poems, tells of an Athenian girl captured by the Syracusans, whose life was spared because she could recite long passages of Euripides.

At the top of the theatre opens the Street of Tombs. The tombs are all empty now, and the marble tablets which used to line the walls taken away, but the dark entrances to the family burial chambers are visible. The road is cut in the solid rock, and the deep ruts worn in the rock by chariot wheels may be seen.

The road curves round and comes out upon the flat, open country where once the city of Syracuse extended. On the high, open land above the theatre we came upon a group of Syracusan women and children washing clothes in the channel of an ancient aqueduct. An old lady standing up in the water was flogging the stones violently with a bundle of wet clothes, till one wondered how many washing days like this they would survive. Perhaps it is only an annual affair.

There are a few bits of Roman Syracuse still to be seen, and these ruins of the Palistra lie below the theatre and nearer the sea. Apparently it was a place for the education of youth in athletic exercise. The semi-circular space is now full of water, through the bursting of an old aqueduct when the railway was made, and it is full of frogs, skilled at any rate in the athletics of jumping and swimming.

One of the outlying ruins of Syracuse is the old Greek fort, Euryalus. The square pillars in the courtyard were used to support a drawbridge, and in each side of this courtyard are passages cut in the solid rock for military purposes. On the right are cellars for stores, on the left are passages—low ones for foot-soldiers, higher ones for horsemen. The rings to which horses were tied still remain in the rock. The fort proper stood above ground, and is now gone.

From this point the great walls of Dionysius stretched away north-east and south-east to enclose Syracuse. The Anapo is a small river which flows into the great harbour opposite the town of Syracuse, and one of its branches, the Cyane Brook, is worth a visit because of the beauty of the papyrus plants which grow on either side of it. This is the only place in Europe where these plants grow wild. They are the descendants of some which were planted in the ninth century by the Arabs. A boat can be rowed and pushed up this stream as far as its source in the Pool of Cyane. The banks are bare of trees, though thick with papyrus. The pool is of a deep blue colour, with a spring at the bottom. The Greeks wove a legend round this place, as they did about many others in their new island home. The King of the Underworld, having seen the maiden Proserpine gathering flowers in the fields, carried her off to be his queen. The nymph Cyane met him at this spot and tried to save her playfellow, but for her pains was changed into the spring of clear water which bears her name to this day.

We now come to the most beautiful part of the island, and to Mount Etna. This magnificent volcano is nearly 11,000 feet high,

and presents to the sight the whole of its slope, from the sea up to the snow on its summit. This slope is so gradual that it is difficult to realise its great height, which is three times that of Snowdon or Vesuvius. While we were within sight of it there was always a cloud hanging round the summit, with only an occasional glimpse of the snow. The last great eruption in 1892 was not from the great crater. For the first day smoke poured from the summit, and then the eruption broke out at a small crater much lower down and nearer the sea, and the great crater became tranquil.

The town of Catania is quite new, having been again and again destroyed by eruptions and risen afresh from its own ashes. Lava has flowed down to the edge of the sea, and the train crosses great black streams of it, with vines planted in the crannies, for lava soil produces the very best wine.

Taormina lies on the northern side of Etna. It is the most popular resort of tourists in Sicily. Stories are told of English people who have come to Taormina for a week and stayed three months, and sometimes they never go away at all. Some we met had been there three years, and were still staying on. We were there only three days, but we found we had already begun to take root.

Standing in the Græco-Roman theatre here and looking at Etna, you have to turn your back on a view of Sicilian coast, of blue straits of Messina, and high distant mainland of Italy that alone is worth travelling many miles to see. We are standing at the top of the auditorium, looking at the stage. On the left is the sea far below, and on the right the tops of the houses in the village. Etna, with a great cloud on its side, is partly visible.

The people on the east side of Sicily are still said to be Greek, as around Palermo they are Arab. Most of the people we met spoke Italian as well as Sicilian; but the peasants speak only Sicilian, which is said to be incomprehensible to many Italians. One day we had an hour or two to wait at a wayside station in the company of two country-women and their babies. They spoke only Sicilian, but the railway porter kindly interpreted, translating our remarks into Sicilian and theirs into Italian. We were making tea with a tea-basket. The women had never heard of tea, and wanted to know what it was. The porter, being very well informed, explained that it was a kind of coffee. We made them a cup, which they said was not bad, but they seemed doubtful whether our intentions were poisonous or not. The porter asked many questions about the education, taxation, and state of the market of England. He confessed he could not comprehend a country where a father could calmly allow two unmarried daughters to travel three thousand miles alone.

A sad consequence of the popularity of Taormina is the number of beggars, who, like vultures watching their prey, gather wherever the tourist is to be found in any abundance. The only extortion verging on cheating that we met with was here. All sorts of dodges to get money from strangers are invented, and they are not very good-natured ones either. The most impudent was a little invention of the man who collected *dazio* at the gate. We remarked, as is usual, that we had no eatables concealed either in our luggage or about our persons. The man demanded sixpence, without offering a receipt or a reason,

only saying if we did not pay he should open our bags. We said he might if he liked, and he replied that they were ours, and we must open them. After some animated discussion, we unstrapped and he peeped in, and I must say to his credit he refrained from making hay of the contents. Then reluctantly he let us pass on untaxed.

Leaving Taormina, we arrived at Messina, beautifully situated, with a fine harbour enclosed, like that of Trapani, by a sickle-shaped neck of land. The straits of Messina are very beautiful, and much narrower than we expected to find them. Owing to the bottom of white sand, the water is extraordinarily blue—a turquoise shade, with dark purple patches of shadow. The Italian mainland is very fine, with high headlands rising sheer out of the water. In ancient times the straits were the terror of the mariners, because of Scylla and Charybdis. The rock of Scylla may be faintly seen on the Italian side of the water. Charybdis was a fabulous whirlpool. Whether there is much of a current at certain times or with certain winds, I do not know; but the few ripples near the shore are all we saw of it. Standing here we are on the north-east tip of Sicily.

The ship is already out of the straits, and away to the left are the Lipari Islands, with another volcano—Stromboli—rising like a dome out of the sea, crowned with smoke.

A last glimpse of the colonial Greeks is to be had at Pæstum. The Greek colony of Poseidonia, known to the Romans as Pæstum, lies about sixty miles south of Naples. At the present day all that remains of what was once a beautiful city, celebrated for its roses, is a cluster of houses round the railway station, and three magnificent ruined temples, with some fragments of ancient wall. The names by which the temples are known are mere conjectures. The first, which looks a mere skeleton, is called the Basilica; the second and finest is Neptune; and the third, which lies on the right, is Ceres. I give the names as the guide-book gives them, though they are the Roman names of the Greek deities.

The Basilica is now considered to be the oldest of the three, and its proportions are certainly not as fine as those of the later temples. The columns are too much bulged, and rather thick for their height. The usual number of columns for a peripteral temple is 34 to 36, six being placed at the ends. The Parthenon, in Athens, and this Basilica are exceptions, the Parthenon having 46 columns (eight at the ends), and this temple 50 (nine at the ends). The upper parts of the masonry have fallen away, which increases the stunted appearance. A row of columns divided it down the centre, and it was probably dedicated to two gods.

In the foreground is a strange tangle of plants, through which you walk to reach the temples, some of them very prickly and painful to the ankles. The place is very unhealthy in the summer and autumn, although it was once a populous district, just like the Roman Campagna. Near Pesto station Professor Grassi conducted some of his experiments to prove that malaria is introduced into the system by some kinds of mosquito.

The most splendid of the temples is the one said to be dedicated to Neptune. It is a much deeper gold colour than the others, and is

in a remarkable state of preservation. It has some architectural features peculiar to it.

The characteristic solitude of Pæstum is destroyed by the arrival of all tourists by one train. About thirty Germans, French, and English arrived with us, and on coming within sight of the temples the photographers became so excited that they could not wait until the field was clear, but photographed one another together with the temples. Fortunately, it was about mid-day when we arrived, so that in twenty minutes everybody had gone in search of a place where they could get something to eat. We had bread and meat and an orange in our pockets, and enjoyed an hour's solitude, broken only by the appearance of lean, apologetic dogs.

The Cella was raised on a step, and the wall was not solid, but formed of columns, and had a second storey of smaller columns to support the roof. It was practically open to the air, and the effect of the forest of columns was always pretty much what it is now. This temple is not as large as the one at Segesta, and the columns are shorter and thicker. According to the standard of perfection attained in the Parthenon, at Athens, $5\frac{1}{2}$ diameters is the proper height for a column. These columns are only about 4 diameters high, while those at Segesta and Girgenti are about 5, and therefore more graceful.

The temple of Ceres is the smallest, and perhaps the most graceful of the temples we have seen, and stands a few hundred yards away from Neptune. As was the case with the Basilica, the masonry of the entablature is gone, though the pediments remain. The hills rise two or three miles away, although there is a fine picture of the temples in the Tate Gallery, with buffaloes and peasants, in which great cliffs tower immediately behind them.

Each temple has a distinct expression of its own. They are not mere repetitions of column and cornice, of architrave and pediment. It is not through the obvious and the superficial in art that the Greek makes his appeal to our sense of beauty. Through the almost imperceptible niceties of form he produces that perfection which admits of no question, because when we see it we know that it is beauty. There are a pair of broken marble feet in the museum at Palermo and some battered terra-cotta statues in Syracuse which preach a more valuable sermon upon beauty than many an exhibition of the Royal Academy or the Salon.

In concluding, I feel that I have not spoken half strongly enough of the beauty of these wonderful Greek temples. It is impossible to exaggerate their fascination when seen under their native sky. Let anyone who for love of Gothic architecture feels inclined to disparage the Greek go to Pæstum—where, after Athens, Greek temples may best be seen—and he will find that there is something there that escapes the plates and plans of the archæologist, something that only the temple itself will make him realise. Even the best photograph must fall far short of the beauty of the real buildings, the sight of which has been, I shall always consider, the greatest privilege of my lifetime.

WHAT IS GEOGRAPHY?

[Addressed to the Society on Tuesday, December 13th, 1904, in the Memorial Hall, Albert Square.]

By ERNEST W. DANN, B.A., F.R.G.S.

WE have set ourselves to-night to answer a very difficult and debatable question. The more one considers the amount of discussion that has been recently taking place upon this important subject, the more rash and presumptuous does it seem for a comparative youngster to rush in where editors and professors fear to tread, and to commit the indiscretion of trying to settle the limits of a subject upon the scope of which so many of our leading scholars are so divided. For any such rashness I apologise.

It is no part of my purpose to endeavour to improve upon the many masterly definitions of our subject which have been given to the world by its greatest teachers.

Dr. H. R. Mill says: "Geography is the exact and organised knowledge of the distribution of phenomena on the surface of the earth, culminating in the explanation of the interaction of man with his terrestrial environment."

Another great teacher, Mr. H. J. Mackinder, says this: "I have ventured to define geography—if it be a definition—by saying that it answers two questions. It answers the question *Where?* and it then proceeds to answer the question *Why there?* Now, of course, the old memory geography answered the question *Where?* in respect of names. It did not even answer the question *Where?* completely, and so far as *Why there?* was concerned, I have seen text-books which did not attempt it. Let me venture to say what I think geography is at its highest. We are now developing geography as a University study, and we claim that geography is entitled to the position of a University study, that it is worthy of the life-study of specialists. You will not therefore be surprised if, as the ultimate aim of your very best pupils, who are to have all the chances, we take a very high standard indeed. I believe that geography contains in it elements of three things: Elements that are essentially of science, elements that are essentially of art, elements that are essentially of philosophy—of science, in being reasoned, measured, ordered knowledge; of art, geography is half art, partly fine art; of philosophy, for the philosophies of history, politics, economics all contain a large geographical element. When you have got your myriad facts, registered with the labours of all the generations which have gradually given us the map of all the World in all its infinite details, you have to acquire the ability to see with the mind's eye, not the mere map of Italy with the boot at the end of it, but the blue sky, and the blue sea, and the brilliant sun, along a hundred miles, and again a hundred miles, of brown coast, rising high into

mountains clothed with the dark tint of the chestnut forests, rising still higher on to Alps, as they are called, with a neutral tint, crowned at certain seasons, at any rate, with white caps of snow, and to see, down along the coast here and there, shining brilliantly white in the sunshine, the towns, Salerno, Naples, and the rest of them, along the coast. We have got to be able not only to see the picture, but to prolong it, by an effort of imagination, beyond the horizon. To visualise is the very essence of geographical power, which should be cultivated until it becomes possible to think of the whole World's surface at once in all its complexities, with its girdles of all kinds, telegraphic, railway, steamer, girdles of power, girdles of thought, for every touch of the helm of government, either at Westminster or in the City, produces a ripple which goes right round the World, like the wave in the air emitted from Krakatoa meeting obstacles and producing varied results. Nothing happens without producing results in every part. You cannot estimate the price of wheat on the Corn Market, as it will be a few months hence, without taking into account the probabilities of harvests in all parts of the World. You must be able to think and visualise on the stage of this round World. This is geographical power on its artistic side; and it is essential to an Imperial people. I venture to say that at times when the vote of Englishmen may decide the life and death of millions in various parts of the World—nay, the fate of this country itself—that our aim is here very practical. There is a third element—philosophy. The philosophy of history has a very geographical side. Any real philosophy of politics—any economic philosophy—at the present day must also have a very important geographical side. Therefore I believe that in its highest development, when expressed in the highest culture, geography is at once scientific, artistic, and philosophical." This is a magnificent utterance by a magnificent teacher, and demonstrates very faithfully the highest conception of the study of geography. Nor is it mere vapouring. The teacher who would succeed in his particular sphere of culture must have unbounded faith in it, and a thorough grasp of aims and principles. If he be enthusiastic, he will find that enthusiasm infectious; if he be broad-minded, his pupils' ideas will broaden. So, let us take a noble conception, such as I have quoted, for a starting-point; let us see at what we are aiming; let us appreciate the limitations of our environment and of our students; and let us finally arrive at some conclusion as to what geography is, or ought to be, as practically worked out in education.

It need hardly be said that there are still many false conceptions of our subject. One is apt to assume that other folk, who perhaps do not profess to specialise in it, have progressed as rapidly as we, and it is a rude shock to find that scholars are still taught, as of yore, on the principle of wearisome repetition, bad text-books, and physico-political abortions called by the facetious name of wall-maps. The days are far from being over when we hear the rigmarole of "Great Bear Lake, Great Slave Lake, Athabasca, Winnipeg, Winnipegosis; Superior, Michigan, Huron, Erie, Ontario; Swale, Ure, Nidd, Wharfe, Aire, Calder, Don, Derwent; Flamborough Head, Spurn Head"—and so on. No; "there is much rubbish." On the other hand, it cannot be too emphatically stated that the theory of sound geographical

teaching and its practice are two very different things. We are passing through successive paroxysms of new-fangled syllabuses, some complex, some bald and over-generalised, and some which waste much valuable space in instructing teachers in the rudiments of their art instead of putting them on the broad, common-sense track. Who needs to be told how to institute comparisons between mud-bearing gutters and mud-bearing rivers? And what teacher needs to be instructed how to illustrate the difficulties of travelling uphill, and so on? There are many syllabuses which look charming on paper, but which no practical person would ever attempt to work out in a school.

Geography has, as we have already seen, many sides. It treats of the earth, as its name implies. The earth, indeed, is only a part of a great universe, and therefore we should know something of this great universe, and of the aggregate of cause which produced this globe. We must know its size, its shape, and its constituents, too, as well as its place and importance in the great whole. When we have gained a broad conception of its substance, we can begin to consider its outer crust. So far, then, we have ranged through a wide field of astronomy, to appreciate which a good knowledge of mathematics is necessary, and we have then introduced a fairly exacting course of geology. And yet we have barely touched the fringe of what is conventionally known as geography. The study of the surface of the globe makes it necessary for us to search from the Globigerina ooze of the ocean to the snow-capped peaks of the Himalayas. We must know of the ocean currents, of sea and land breezes, of rain and sunshine, and of the manifold conditions which affect the surface of land and water. We need to treat of vegetation—in fact, we are now losing ourselves in botany, not to mention agriculture!—and of living creatures, and here we are being drawn into the vortex of zoology. We range over continents and oceans, and we survey islands, icebergs, and the like in the mass and separately. Having considered the whole, we can consider its parts, and treat of the lands in detail. This leads us to study the inhabitants of the lands, and brings us to the last branch of our study, man on earth, anthropology, history, political economy—there is no end to it. Geography, then, in its widest sense, is a compendium of the sciences. I do not mean to contend that the perfect or ideal geographer is the possessor of a universal knowledge. I simply mean that the subject is sufficiently comprehensive to satisfy any ordinary mortal's thirst for knowledge, and still to leave him very, very incomplete. Is not that the hall-mark of *all* science?

We have, then, something to aim at. It only remains to be seen how far we can go ourselves, and how far we can take our pupils. Teachers of geography have very different ideas as to the scope of their work. We have, on the one hand, the geologist. The danger with him is that, in his excess of zeal, he may allow his geology to run to seed. His pupils will listen with amazement to his descriptions of the development of this old, old world. They will be confused with much that is mere theory, more that is part of the pet notions of the teacher himself or the school to which he belongs, and they will gain a valuable modicum of indisputable fact. But such mundane matters as exchange of productions, such sordid and unphysical considerations

as mere trade routes, and such dry-as-dust and primitive things as the study and comparison of significant statistics are too prosaic. Many a geological geographer trembles with horror at the sight of figures, as James I. did at the sight of a drawn sword. What have they to do with cold, dry statistics who can "draw unlimited cheques from the bank of time—and they are all honoured!"

The question of the position of geology is indeed a difficult one. It is absolutely necessary, for the proper understanding of geography, to have a good working knowledge of the sister science. I do not say that it is impossible for the non-geologist to become a very finely equipped geographer. But the two subjects are too closely connected to be regarded as distinct. The one is the ancient history of the other, and in places the two are indistinguishable. Geology has a distinct bearing upon scenery, and scenery is a distinct branch of our geographical study. (Here several slides were shown.)

I have shown these slides, then, with the intention of demonstrating the inter-action of geology and geography, and it is *here* that I would draw the line. When geology presents us with *facts*, we are glad to utilise those facts in our geography. Where it is merely speculation and theory, we must leave it. Palæontological geology is merely interesting to us. When it has finally established a conclusion, then we may thankfully use that conclusion. Take, for instance, the Glacial Period.

No one can give a generally-accepted explanation of the formation of our Cumberland lakes. Lord Avebury says: "That the North Country and Welsh lakes are drowned river valleys no one will deny. Their narrow, winding courses and general appearance leave no room for doubt on this point. But the difficulty is to account for the dam at the lower end." Then he propounds three theories: (1) That of change of level, due to earth movements; (2) that of a dam of morainic matter; and (3) that of glacial erosion. All the geographer can do, then, under the circumstances, is to map out his lake, sound it, describe it, and leave it.

I am disposed to set some store by the study of *local* geological maps and localised excursions, in which a knowledge of this science is a great help; but there is a great deal that is unnecessary in the purely speculative treatment of some parts of our earth's surface. Take, for instance, this passage, which I have extracted from a very fine monograph upon Anatolia and its surroundings:—

"With the exception of those dividing the coasts of the Caspian from the inland plateau, and those bordering the Arabian Sea and Persian Gulf, the parallel mountain ranges generally stretch from north-west to south-east. They are considered to present the same geological features as the Zagros chain, which consists of cretaceous nummulitic rocks. The Zagros is the whole mountain range from Ararat to Shiraz, forming the gigantic frontier wall between Persia and Turkey. The occurrence of metamorphic rocks has also been noticed, as well as an extensive area of volcanic formations, some of very recent origin. Both the north and south slopes of the lofty Elburz range are rich in coal and iron. The highest peak of this range, which overlooks the shore of the Caspian, is Demavend, a beautiful mountain not less than 19,000 feet in height. Of the southern

borderland of the Persian plateau, Blandford remarks that the part traversed by him appeared to consist of low ranges running east and west, which, except near the sea, were almost entirely composed of unfossiliferous sandstones and shales associated with a few beds of nummulitic limestone, apparently belonging to the older Tertiary epoch."

Until the world is properly surveyed, and its rocks thoroughly known, it is very unsafe to theorise. No one knows that better than the geologist. Professor Suess writes from Vienna: "In this second half of the third volume a plan of the trend-lines of the earth will be found. It will be a first attempt, burdened by all the difficulties, perhaps too all the errors, arising from this circumstance; but it will have fully accomplished its purpose if it is found fit to serve as a link to the fresh observations which unceasingly succeed each other." Let us, then, leave geology when it ceases to present us with facts, and be very grateful for the amazing strides made in recent years by this marvellous subject.

Then again, we have the historical geographer. He is often so charged with the one study that he is tempted to snub the other. He wanders off into bewildering and unnecessary details, and leaves himself with no time nor opportunity to give the main ideas on the geographical side of his work adequate treatment. Or again, there is the statistical fiend. He has a hard head and an appalling penchant for facts. He will hurl them at you with ceaseless pertinacity—how many bales of cotton entered such and such a port in such and such periods; the price of wheat per quarter for the last seventy years; the navigable length of every river you can mention; the exact number of locks in the Canal du Midi.

Far be it from any of us to underrate the value of each and all of these gentlemen. We cannot know too much of the structure of our world; we can hardly exaggerate the significance of the interaction of geographical and historical cause; statistics, judiciously used, speak volumes, and some should be accurately remembered; but we must think of the pupil. These days of specialisation demand teachers of great ability, who are at the same time scholars of no mean attainments; and it is the hall-mark of a good teacher that he be able to select just the appropriate matter—no more, no less—to impart to the pupil. Let us try, then, to come to some conclusion, some practical conclusion, as to the nature of the matter which may be suitably taught in schools.

In the first place, it seems to me only common sense to lay down the important principle that the student should know his own district thoroughly. [In case any of my audience have not had an opportunity of seeing the special cheap edition of Ordnance sheets issued to schools, I have brought down some specimens of such, which have been in use for a month or two at the Manchester Municipal Secondary School. The boys have, so far, marked out the amazing network of electric tramway routes, in red ink, radiating from Manchester, Oldham, Middleton, Salford, and Ashton-under-Lyne. They have also coloured rivers, canals, and reservoirs blue. With the aid of these maps, issued to each individual pupil, a great deal more can be done than the mere teaching of topography. One instance only will suffice. If two or

three of Bartholomew's beautifully coloured half-inch sheets be displayed, and a fine piece of workmanship like Kiepert's German Empire, the whole principle of contours, which, believe me, is bewildering to the average schoolboy, can be readily explained, and the scholars soon taught to read their contours *without* the help of colouring. These sheets would have done a great deal if they merely succeeded in interesting the children in maps. But they do more than that; they not only quicken the child's interest in his own district, they not only afford invaluable instruction in map-reading, and a number of other vitally-important geographical principles, but they also stimulate the interest of parents—and that is a great thing. Wherever the municipal or other purse can run to it, teachers will do well to take advantage of the great concession made by the Board of Agriculture in this matter. One says "wherever practicable" advisedly; many Education Committees would very promptly stop any attempt to lay out five pounds or so in such a way. The fact that the sheets cannot be sold would be quite enough for some City Fathers. This class of work has three advantages—it is interesting to the boys themselves, it is in no small measure utilitarian, and it is highly educational. It ought, then, to please most people.] It is really amazing to find how absolutely ignorant the average scholar is of any but his own particular district. A very large proportion of Manchester boys have never been on the other side of the Irwell. Salford to them is only a name, connected with docks and dinginess. One often finds Heaton Moor folk who have never heard of Heaton Park, and *vice versa*, and many a child that frequents Queen's Road has never heard of Lamb Lane, its continuation. Grown-up folk as well as children persist in going about with their eyes, to all intents and purposes, shut—and those eyes must be opened. No more congenial way than this under consideration can be found for causing the pupil to find out things for himself. It is a pleasure to see a class of lads ferreting out the anachronisms on the six-inch sheet. I have been constrained to dwell rather upon this point, because it is really the case that many teachers look upon this issue of Ordnance sheets as a new-fangled fad and a very unnecessary and reprehensible pampering of children. It is hardly necessary to refute that charge here.

It is in gaining knowledge of the home district that the geologist is of great service. In this Pennine region we are specially favoured; the mountain limestone, the millstone grit, the coal measures are all near to hand. The large warehouses, especially in their lower courses, give us good specimens of various important rocks. The Derbyshire caves, the remarkable dearth of many important plants, and the great abundance of, say, rhododendrons, all afford a fine field for observation and research. The geologist, in fact, can interest his pupils by his special knowledge of the rocks of the district. He will explain the process of denudation by which the coal measures have settled down upon both the Lancashire and Yorkshire sides of the range, and will contrast with the low-lying coal measures of Scotland. It will be possible in some cases to take classes to inspect some of the geological phenomena of the district. Outdoor excursions are more easily spoken about than put into practice, unfortunately. One is dependent upon the weather and restricted by distance and expense,

besides being confronted by the difficulty of cutting across the work of masters who take other subjects; for outdoor excursions take time. It is one thing to put open-air work into syllabuses; it is quite another to carry it out. The botanist, too, can do an equally useful work, and more readily too, for many reasons, in examining, with and by the aid of his scholars, the flora of the particular region in which they live.

This study of a district is readily widened. One cannot treat of Liverpool without treating of New Orleans and Egypt, and it is hardly possible to speak of South Lancashire without interesting the class in cotton and many of the important questions connected with cotton supply. And who could leave this subject without discussing the great Industrial Revolution, the Bridgewater Canal, the power loom, the fly shuttle, the steam engine, and so on, without mentioning Napoleon's Berlin decrees, and their salutary effect—the opposite to that intended—upon industrial England, or without telling of the Corn Laws and the massacre of Peterloo? In all such subjects broader and still broader considerations are bound to be introduced. We speak of metropolitan England, and are naturally drawn to a comparison between London and other great cities of the world, and to an examination of the causes of their existence. We speak of the great railways of the country, and this leads us to examine the course of rivers and the difficulties of mountain communication. We discuss rivers and lakes and the sea, and the research of the geologist again proves of immense value both in observation and deduction. The action of water, both constructive and destructive—all this takes us all over England and all over the world, to the Yellowstone region, to Harrogate, to New Zealand, to Bath. When we have extended our detailed knowledge of these islands far enough to know their position, their structure, their climate, their vegetation and productions, their population, their commerce, and some of the history of their peoples, the study of the great trade routes radiating from Britain will naturally lead us to treat of other countries.

In dealing with schoolboys and schoolgirls, some such course as this just briefly sketched seems a reasonable introduction of the youthful mind to the subject. It carries out the important principle of “from the known to the unknown.” As the pupil ripens mentally and becomes more and more familiar with the subject, so it will be possible to introduce more and more of the crucial parts of the science. And here, before going further, we must try to put into its place each of the great branches of geography which were enumerated in such appalling array a little while back.

In assigning a place to each branch of geography it must be remembered that a great deal is gained by allowing the teacher to pay special attention to his particular study. We all dabble in geology, but let the man who has had the advantage of a close knowledge of this important science, and its attendant chemistry and so forth, apply it in some detail on the geographical side, but *on the geographical side only*. In most schools the physiography masters relieve us of a considerable part of our work, and that is a great gain. They teach the origin and action of winds, and their effect on climate. We take that knowledge and apply it to several and separate countries, and

extend it to show how these physical conditions affect production and distribution. The physiography teacher tells of the origin and action of rain. We teach its distribution. So it is with the historical student. One could hardly give a better idea of the orographical features of the Iberian Peninsula than by taking in some detail the campaigns of Sir John Moore and Wellington. True, it is the duty of the history master to treat of the Peninsula War, but he co-ordinates it with the story of the rise and fall of the great genius of the French Republic and Empire. The geographer puts it side by side with Roland and Roncesvalles, and the Black Prince and Navarette. There is no harm in a class hearing the same subject treated from different points of view. Europe and our islands are a fine field for the historical geographer. The west coast route *viâ* Carlisle from Scotland tells us of the Battle of Preston; the eastern route, from Preston Pans to Northallerton, bristles with the battlefields of the past. The great mud flat where road and river meet gives us a spot for the growth of the greatest city of the world. The Netherlands border, the Gate of Metz, the approaches to Vienna, the portions of poor dismembered Poland, lozenge-shaped Bohemia, dark Thermopylæ, Constantinople and the Crimea all teem with interest and abound in food for both philosophic study and valuable teaching. If the teacher be a botanist, and botany be taught in the school, he can illustrate many a biological lesson by calling in the aid of one's knowledge of the earth; and he can, on the other hand, make one important branch of geography of living and great educational usefulness. There is a very welcome attention being paid to nature study nowadays, and nature study is a pursuit in which the master can gain the willing and helpful co-operation of his classes. Lastly, in this connection, statistics are often of the most vital importance in clinching important truths. An ounce of fact is worth half a hundredweight of theory. A glance at the diagram on page xxv. of the introduction to Chisholm's "Commercial Geography," an illustration which shows the coal production since 1883 of the United Kingdom, the United States, and the German Empire, would serve as a graphic finish to a lesson on the subject it illustrates. No one who has once seen it can forget that sudden upward curve of the line which represents the production of that mineral in the United States. The figures, too, which tell of the growth of the Manchester Ship Canal traffic speak volumes—as, indeed, do also the luckless shareholders, when one opens their lips upon the subject.

It is hardly necessary to apply what has been said already to the more detailed study of the world. If one can only have the necessary apparatus, it is easy enough to study or teach geography on broad lines. (Here slides were shown illustrating the world systems of vegetation, isotherms, isobars, and winds, in January and July.)

One thing in passing. It is exceedingly difficult to persuade the makers of syllabuses in schools to countenance a course in geography which does not include a solid year's work at "The British Empire." We are often thrown into collision with people who would teach Canada without reference to the United States. For instance, Michigan is not one of the Great Lakes. There are no Rockies south of the forty-fifth parallel. The luckless porkers of Toronto have no connection with those that are put to death with such characteristic carelessness and

brutality in Chicago. There is no such region as German West Africa; there is only Walfisch Bay. These worthy people will dodge with the utter absence of effort from British Guiana to British North Borneo, and from British North Borneo to Gibraltar, Aden, or Hong-Kong, without a single qualm. It was with some difficulty that one could get the other geographical teachers in a very large school here to accept as a four years' syllabus, the British Isles, Europe, the World (with special reference to the British Empire), and General Geography. The World is a year's work! It was all that they could do to get through the English Possessions! Such sentiments may be patriotism; they are not geography.

In studying our own part of the earth, then, we have been led into comparisons and contrasts which have carried us all over the globe. If we take Eurasia on broad lines, followed by Europe itself in detail and Asia in detail, we shall be able to treat North America and the three southern continents as we please. And what shall we teach? To begin with, less and less geology, for we cannot persuade the scholar to grasp ideas of which he can only have hazy and theoretical indications. He is beginning to develop; let him, if he will, specialise in that study if he goes to some University. There is abundant opportunity for him here in Manchester. To continue, more historical geography, and more and more economics. The former depends largely on the region studied; there is nothing deliriously dramatic, for instance, in the story of Verkhoyansk. The latter is a study which is not taken up, as a rule, half early enough. The schoolboy positively revels in what I may perhaps call informal economics. He will be found quite willing to study, in the light of his geographical learning, many a principle of political economy. He appears at the present time to be taking a great interest in the fiscal controversy. All power to him; let him go on and prosper, and through all his childish blunders come to the truth at last.

The upshot of the whole matter is this. Geography has certain easily-defined limits. It has also a large and extensive fringe of bordering subjects such as have been indicated. It is absolutely impossible to follow up more than one of these studies; it is absolutely necessary to appreciate the value of, to be in sympathy, and to have at least a bowing acquaintance with them all. The geographer must extract from such treatises as Schimper's "Plant Geography on a Physiological Basis," or Professor Suess' "Das Antlitz der Erde," or Oman's "Peninsular War," such matters as will help him to gain knowledge of the conditions and phenomena connected with our globe and life upon it. He will not need to classify each individual plant that Schimper mentions. He must study them in the mass. He need not take sides upon the argument for the permanence or continuity of the continents. He only need appreciate such facts as are established, and pray for a Newton or a Darwin to propound some gigantic and all-satisfying theory. He need not criticise the British War Office of 1812; he only need understand the reasons for the movements of Wellington, Marmont, and Masséna. He can skim off the geographical cream of many subjects. If he can do no more, well and good. He has done something. If he can become a biologist, a geologist, a historian too, all the better. He is a geographer in either case.

"Geography is not claimed to include the sciences whose results form its raw materials, any more than a house can be said to include the quarries, the forests, and the mines which have yielded its stone and timber and metal work."

But I have said enough. We have seen what geography is, in its widest sense. I have tried to define its limits, loosely. There are many ways of developing special sides. One man may have a genius for cartography and a passion for surveying. He may, under certain circumstances, find play for his faculties. But there is much, essential in a University course, which cannot be included in a school curriculum. One feels rather inclined to discourage map-making—or rather, map-copying—in schools. The drawing of sections, the enlargement or reduction of portions of sheets, and so on, have all their value. But one cannot do much with an hour and a half a week. *This is the root of the whole matter.* It is very necessary to remember that geography is not the only subject taught in schools. A class may come downstairs from a chemistry lesson with its head full of formulæ and calculations. It is led straightway into a discussion upon climate and productions, and goes away to be charged with a dose of Euclid. It is essential that its knowledge shall be made to *last*. Its learning *must go home*. Ephemeral work avails nothing, and children must be *made to learn*. It is very entertaining for them to look at slides and to read descriptions; but much of the geographical teaching of the past was good in one sense, in that the children were compelled to work. We must see to it that they work now. The tendency of modern education is to take the work off the child and put it upon the teacher. This must not be. Modern common-sense education *must make the pupil work*, and work hard too, or we shall merely bring up a generation of loafers with ideas too big for their position. We must not despise the past, but we ought to be very thankful that there is a future too. Let our large ideas, our broad conceptions, remain. But let us never forget that we must come from theory to practice every day we live and teach and learn. Then, and then only, shall we be truly practical and truly educational.

LANTERN LECTURES FOR THE COLONIES.

LIFE IN THE MOTHER COUNTRY.

THE Colonial Office have issued the following announcement:—
The object of giving to the school children of the United Kingdom better knowledge of the colonies, and of giving to the school children of each colony better knowledge of the United Kingdom and of other parts of the Empire, has been brought into prominence by various organisations, and commended itself to Mr. Chamberlain when Secretary of State for the Colonies and to Mr. Lyttelton, the present Secretary of State.

With their approval, a small committee has been formed to carry out a suggestion made in the first instance to the Colonial Office by Mr. M. E. Sadler while at the Board of Education, that very first-rate lessons or lectures, to be illustrated by equally good lantern slides, should, on the lines which have been successfully followed out in the United States, be drawn up and used in the schools of the Empire.

The Committee thought that it would be well to begin on a small scale and in a very modest way, but bearing constantly in mind that, if the experiment is to succeed, the letterpress and the illustrations must be the best possible.

Accordingly, acting under the Secretary of State's authority, they drew up a syllabus of seven lectures on the United Kingdom, each to be illustrated by some forty lantern slides, the subjects of the lectures being:—

- (1) The journey from the East to London.
- (2) London the Imperial City.
- (3) Scenery of the United Kingdom.
- (4) Historic centres and their influence on national life.
- (5) Country life and the smaller towns.
- (6) Great towns, the industries, and commerce.
- (7) Defences of the Empire.

This syllabus, designed for use primarily in the Eastern colonies, was sent out to the Governments of the three colonies of Ceylon, the Straits Settlements, and Hong Kong, and each colony was asked and consented to give a grant of £300 to cover the expenses of the scheme.

The money being available, Mr. Lyttelton consented to the Committee's request that Mr. H. J. Mackinder, director of the London School of Economics and Political Science, should be asked to undertake the preparation of the lectures and the general superintendence of the scheme.

Mr. Mackinder accepted the invitation, and the lectures will be in the first instance delivered in a London training college for elementary teachers. They will be reported verbatim, put into print, and be corrected and edited by the lecturer, the whole, with any special slides which may be designed for the purpose, becoming the property of the three colonies concerned, but being available for sale to other colonial Governments.

It will be borne in mind that—

(1) The lectures are intended for the higher classes in elementary schools, or with modifications for adults.

(2) Each lecture may well supply several hours' lessons, being intended to be the text for teaching and a guide as to the method of teaching, and not simply to be repeated word for word in a single hour.

(3) The object is to give to children through their eyes as well as their ears a true and simple impression of what the United Kingdom and its people are like, to explain to children living in the tropics what the seasons mean in this country, and so forth.

(4) The lessons may well be translated into the vernacular languages for use by native teachers.

The Eastern colonies will also supply material for similar lectures upon them to be used in this country.—*Manchester Guardian*.

CORRESPONDENCE.

COTTON GROWING.

72a, Deansgate, Manchester,

July 2nd, 1904.

Secretary, Manchester Geographical Society.

DEAR SIR,—Herewith for your reference library, "Cooksland in North-Eastern Australia: The Future Cotton-field of Great Britain," by John Dunmore, D.D. London: Longmans, 1847. You will see that this work is alluded to in a letter to the *Textile Mercury* of to-day's date on "Cotton Growing in Queensland." My opinion and desire is that the Manchester Geographical Society should be the place for all such reference books and samples of cotton, and in this way render great aid to the British Cotton Growing Association.—Yours sincerely,

(Signed)

GEORGE THOMAS.

LIFE IN CHINA.

Government University, Tai Yuanfu, Shansi,

North China, October 3rd, 1904.

MY DEAR MR. AND MRS. SOWERBUTTS,—Very many thanks for your kind letter of August 28th, and I am glad to say that I seem to have got over my appendicitis very well, and have had no trouble just lately. I am also glad to say that I have had several tastes of bird's-nest soup just lately, and I have enjoyed it very much. Chinese food of the best kind

is extremely good, and I thoroughly enjoy it. Some time ago I sent Mr. Clarke a manuscript of a trip to Hankow, and I also sent you some films. I am afraid I did not name the films, and so I enclose you a list of them. Some of the films are very poor, but I sent all so that you might see what they were like. We have got into our new houses, and the new university is finished. We have had no little excitement over moving in. In the first place several of the ceilings gave way, and then it was found that all the chimneys were stuffed up, one or two having beams running through them.

We have had a visit from Dr. Morrison, the correspondent of the *Times*; he stayed here several days having a look round. I have sent to mother several copies of a very interesting photograph, taken at the opening of our new building, and I have asked her to send you one.*

It is very seldom you get so many big officials in one group. Mr. Nystrom and myself are hoping to make a big journey next holidays, but whether it will be Japan or Korea or some other place we are not certain. We have another colleague, who is on the way to join our staff. He ought to be in Shanghai by now, and if he is a bachelor we hope he will accompany us on some of our journeys.

In company with a Chinaman, Mr. Nystrom and myself have invested in a cinematograph. We have only just sent the order, and so it will be five or six months before we get it. If it is a good one it ought to cause great excitement up here. We are also talking of forming a company for a small electric-light plant. A big official is the moving spirit, and it would be a very fine thing if we could get it accomplished.

With very best wishes to yourselves and to all old friends. Hoping that you will have a happy Christmas, and trusting that if you have a party for the youngsters you will let me provide the cake, I remain, yours ever faithfully,

(Signed) R. W. SWALLOW.

BEN NEVIS OBSERVATORY.

Edinburgh, November, 1904.

SIR,—Having perused the proceedings of the Leith Chamber of Commerce in Saturday's papers on the disestablishment of the Ben Nevis Observatory, I write a line to say that I fully concur with the terms adopted by the meeting, and that I am pleased to note that a similar attitude has been taken up by the Chamber of Commerce in Glasgow.

The question had become political as well as financial, in so much that this observatory had, by lapse of time and use, become an industrial trust or firm, as it had in its maintenance a large staff of employees, consisting of contractors for food, forage, coal, wood, horses, carts, navvies, messengers, telegraph and other accessories.

All these were in daily use, besides the few scientific observers, who were but a fraction compared with those of the maintenance, and most of them have now been turned adrift or elsewhere to seek fresh situations and employments.

To excuse this wholesale eviction it has been alleged that the observatory was of little or no use in Scotland for weather information, but this

* This fine photograph has come safely to hand.

idea seems to be founded in ignorance of the terms of subsistence of a twenty years arrangement. A grant of about £350 was sent to it from a London fund to meteorology, so that Ben Nevis would furnish them with the work done by reports, tables, summaries, telegrams, forecasts, etc.

No mention was made of duplicates for Scottish use, and London got everything, for which was paid a handsome subsidy, while Scotland was debarred from taking any official advantage of the work. In France, Germany, and America these institutions are put upon a departmental basis, and have staffs appointed by their respective Governments, which are relieved and retired by the same agency. The roads are maintained by the County Council, the buildings by municipal rates, and the salaries and equipment by Government national funds.

At the Puy de Dome, in France, there is a good road all the way up, properly metalled and fenced, and you can hire a fly for five francs, and get a good lunch at the restaurant at the top or a bed if a longer stay is wanted.

At this time of day the Ben Nevis Observatory might be maintained in permanence by an annual vote by Parliament, like the vote for education, and not by an elementary grant, through the medium of a rival institution in London.

Some time since, in consequence of this incongruity of feeling, I proposed that the Ben Nevis Observatory should think of cutting its connection with London, and enter into terms with Berlin and the German observatories, as there is much consentaneity between the weather of the Baltic and the North Sea, and each might assist the other by helpful forecasts.

(Signed) W. G. BLACK, F.R.Met.S.

GEOGRAPHY AT OXFORD UNIVERSITY.

4, Broad Street, Oxford,

October 3rd, 1904.

DEAR MR. SOWERBUTTS,—At the present moment geography is not definitely a compulsory subject in Oxford for any ordinary or honours degree. It enters, however, into the work of those reading both for the pass and honours degrees in Modern History. The majority of the honours history men and a smaller number of the pass men come to the school mainly to Mr. Mackinder's lectures. Last term 130 were on the roll of Mr. Mackinder's class. A small number take Mr. Beazley's course on the History of Geography. Although it is not a specified subject for the *Litteræ Humaniores* examination a varying number of men, up to about fifty as a maximum, and usually a little less than half that number, take ancient geography. A third group of men come to my lectures on regional geography, viz.: graduates reading for the University Diploma of Education; their numbers vary from over two dozen downwards. There is a special University Diploma in Geography. This is practically a post graduate diploma, for which a man must study a whole year with us, giving nearly all his time to Geography. Two to four usually take the full course, and we frequently have one or two who do not go in for the diploma examination, but do much of the work.

There is also a University Certificate in Geography, representing about one-third of the diploma work and time. This has only recently been instituted, and is meant to serve the purposes of those reading for the Education Diploma who take geography as a special subject, but have not time to follow the complete course, and also those who wish to take elementary surveying and military topography alone for military or archaeological purposes.

In the new University regulations for military students, military topography, which is now a B.A. subject, is required, but not geography. I have been informed that the military authorities have made strong representations about the exclusion of geography, and that there is some hope of its being introduced the first time the regulations are revised. This may only be a pious hope. It certainly seems very absurd to exclude the systematic study of the possible theatres of war from the curriculum of the soldier. Geography from now onwards will form an optional subject for the newly-instituted diploma in economics. How many students it will bring us I do not know.

The School of Geography is also utilized as a reference department. We possess between 3,000 and 4,000 sheets of maps, many on a large scale—*e.g.*, practically all Central Europe and the Balkans, France, Sudan, Algeria, Tunisia, and Japan, on a scale of $3\frac{1}{2}$ to 4 miles to an inch, and many special regions such as Switzerland, North Italy, parts of France, the British Isles, and parts of the United States of America on still larger scales. These are consulted by members of the University, and the Curator is in attendance for two hours twice a week for the purpose. We have also a rapidly-growing collection of wall maps. By an arrangement with the History Tutors we lend these maps to the Modern History Lecturers. Collections of slides and photographs have also been started.

An attempt is being made to make a critical bibliography of modern geography. Some 3,000 to 4,000 cards are now ready, and in six months' time it is hoped to have about 10,000 cards of the chief books and papers of the past ten years, and then gradually work both forwards and backwards.

Comparatively little research work has yet been done. That is only to be expected of an institution which began work practically four years ago. One pupil has crossed Iceland (W. Bisiker, "*Across Iceland*"); another, a Japanese, has crossed Eurasia from west to east, studying more particularly Buddhist sites in Chinese Turkestan. Another pupil, Dr. Chalikiopolis, communicated a paper he prepared for our seminary to the latest number of the "*Geographische Zeitschrift*." Another has a paper in the October Number of the "*Geographical Journal*." We do not have enough pupils for the posts vacant, and every man we train is snapped up for some educational or other practical work at once.

The entrance scholarship brings us excellent men. Last year it was not given, as the candidate withdrew at the last moment, as he found he could not spend a year with us, but there are usually from two to four entrants. We need a scholarship for those who have been trained by us to induce them to spend a second year and carry out research work. I hope this is a full enough account for your purpose. I need hardly add that it will give me much pleasure to answer any questions.—Yours very truly,

(Signed)

A. J. HERBERTSON.

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

A VISIT TO PORTUGAL.

By MR. COUNCILLOR WALTER BUTTERWORTH.

(Addressed to the Society in the Accountants' Hall, Manchester, on Tuesday, November 22nd, 1904, at 7-30 p.m.)

THE PASSAGE.

"O to sail in a ship,
To leave this steady unendurable land,
To leave the tiresome sameness of the streets, the side-walks
and the houses,
To leave you, O you solid motionless land, and entering
a ship,
To sail, and sail, and sail."

—Walt Whitman.

* * * * *

WE left Liverpool early one morning. As the day wore on, it increased in beauty. Passing Anglesey, we had the spectacle of the Snowdonian Range long before us.

How beautiful! I thought of many happy days spent in the recesses and on the heights. The hills were white and billowy, like clouds; then successively purple, grey, and black; then ghostly, as the night closed in. The evening took on an enchanting and halcyon beauty. As the sun set it grew exceedingly large; clouds obscured it near the horizon, but presently the western sky became suffused with rich colour, soft and tender; the shining and gleaming sea reflected it yet more vividly.

"It is a beauteous evening, calm and free,
The holy time is quiet as a nun,
Breathless with adoration; the broad sun
Is sinking down in its tranquillity;
The gentleness of heaven is on the sea."

We passed the Skerries, and I went to bed as we approached the dark rock of Holyhead (a red light flashing from the breakwater), feeling that I had for a brief space got away from the—

"Strange disease of modern life,
With its sick hurry, its divided aims,
Its head o'er-taxed."

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In the intervening days we have had a little rain, a little wind, and much chilly sunshine. But now the cold is giving way before the ardent sun. A sky of lightest blue overarches a sea of deepest blue.

* * * * *

Later a north-west wind has sprung up, making our little ship roll violently. "The murmurs and scents of the infinite sea" are no longer matter of enjoyment, and I creep away discouraged.

This afternoon the weather is more favourable. Yonder is the Spanish coast. In the distance is Finisterre, the land's end. I think of the patriotic outburst of Camoens, about that other headland to the south—

"See the head-crowning coronet is she
Of general Europe, Lusitania's reign,
Where endeth land and where beginneth sea,
And Phœbus sinks to rest upon the main."

Oporto.

As we crossed the dangerous bar of the Douro and slowly steamed up the river we seemed to have suddenly reached midsummer. Not a breath of wind; the sun hot; the body languid; men sunburnt and scantily dressed; women in light attire with gay kerchiefs in their hair, fluttering as they strode rapidly along the banks with baskets or bundles on their heads.

Oporto (*i.e.*, the port) lies two or three miles up the river. Though the second city of the country in size and importance (150,000 inhabitants), it is chiefly remarkable for its commerce and general business activity, judged by the Portuguese standard. Its churches and public buildings are of but secondary interest, and may be found duly detailed in the guide books. The city clings to the precipitous sides of the Douro, chiefly on the north bank, and spreads along the uplands beyond. As gorges divide the high bank into separate hills, each covered with the buildings of the city, it has a picturesque appearance from the river or from the famous iron bridge which crosses it. At night the scene is fantastic, with its piled-up black shadows and innumerable points of light.

Goods imported have to be painfully borne up the steep streets. The women carry all but the very heavy burdens, which are drawn by oxen. These oxen, patient, mild-eyed creatures, are yoked in couples with large wooden yokes elaborately carved.

The carts are primitive affairs, of which more anon. The plodding beasts are urged on by proddings of long goads with iron pins inserted in the ends.

It is noticeable that the men of the town never condescend to carry parcels. It is too ignoble for a man of Portuguese blood. Yet they idle about in dirt and rags, smoking and ceaselessly spitting and clearing their throats.

They do all kinds of lighter jobs, and the better sort are, of course, engaged upon the usual artizan industries; many are waiters, policemen, soldiers, railway-men, tramway-men, drivers. But they never carry parcels or burdens. That is a woman's task, or a Gallego's.

Gallegoes are a thrifty and industrious race, originally from Galicia. Though Spanish, they undertake the humble street errands. To them and to the women are assigned the loads to carry.

When we landed at the quay, women were bidden to carry our trunks by the boatman. When we arrived at our hotel, the porter beckoned a Gallego from the street to bear them to the bedroom.

The arrangements as to drinking-water in Oporto have a striking effect upon the street scenes.

Comparatively few houses have water "laid on." It has to be fetched from wells. These are architectural features—fountains pouring forth the refreshing liquid deliciously, with a cool depth of it below.

Hither come the women, with red earthenware vessels poised gracefully upon their heads. They meet at the fountain, fill their pots, pass a few words of gossip, and are off again in all directions, balancing their heavy load as if it were nothing.

When laden, they appear to walk more swiftly, with a free swing of the arms and an undulatory movement of the hips; the spine is evidently straight and strong, the bust is magnificently developed; no stays are worn, the skirts are short, and are gathered to the knee by a sash. The women are broad, almost squat, sturdy, inclined to stoutness, and much bronzed. Many have well-developed moustaches.

Obviously they are finer than the men; harder, healthier work keeps them in condition. But they age prematurely, and soon lose their bloom, smoothness, and softness. Yet they retain strength and agility.

It is almost incredible what they can do under the hot sun in an atmosphere tepid and languorous.

In the fields they and their children toil with their husbands, with backs bent, cutting, hoeing, weeding, digging. Their work never seems to end. Doubtless all must work to keep body and soul together. One woman—a water-carrier—told me she had nine children. Her sons earned about a pound a month. A skilled stone-cutter informed me that his wages varied from 2d. to 2½d. per hour.

It may be well, before entering upon the details of our journey in Portugal, to consider briefly a few of the general characteristics of the country; and first it should never be overlooked that it is only by living long among a people that one can hope to understand them, their way, their ideals.

I offer mere impressions, and feel, even as I speak, that many of them may be inaccurate or unjust. How often this occurs when we are speaking of things most familiar! It is inevitable when we speak, after slight acquaintance with a country and a people sharply divided from us by physical, racial, and historic conditions.

Yet even such impressions may have value, for Portugal is little regarded, little known. Politically she counts for little, and the attention of the European public is absorbed by nations which threaten the world with big battalions, cruisers, and torpedoes.

Commercially she is unimportant, except as a wine-producing country. Her language is unstudied, and is usually mistaken for a dialect. Her literature is understood to begin and end with Camoens, who is little more than a name.

Her many lovely rivers, mountains, forests, her kindly climate and fertile soil, and the long stretch of her sunny coastline are neglected by fashionable travellers. Even her stirring history and brilliant achievements in world discovery are consigned to the limbo of forgotten things except for enthusiastic geographers, who know how much modern history was influenced by the discoveries of the Portuguese navigators in the fifteenth and sixteenth centuries.

Since those proud days the country has sunk very low, though she has been slowly recovering in many respects during the last half century. Still she is sadly backward. A few details will serve as illustrations.

Before 1851 there were no highroads in Portugal, except the short one from Lisbon to Cintra. Great advances have been made in this respect, though one is soon off the highways and back to primitive conditions. There were no railways before 1853, and the development since has been worked partly by the State, partly by French companies. Practicable waterways scarcely exist, and the rivers are rarely navigable to tap the country. Nearly one half the land is uncultivated.

The returns for 1890 are:—

Vines	2·2%
Fruit trees	7·2%
Cereals.....	12·5%
Beans, etc.	2·7%
Pasture	26·7%
Forests	2·9%
	<hr/>
	54%
Uncultivated	46%

Yet with so much uncultivated soil and so favourable a climate it is found necessary to import cereals, and there are not sufficient industrial products to export in exchange.

The exports consist chiefly of wine (one half indeed), which in the last half century has developed to enormous figures, and olive oil, also an important item. Latterly many pine logs, for supports in mines, have been sent into England.

Of industries which are growing the chief are:—

	Establisments.	Work-folk.	
Cotton	125	11,732	} In 1896.
Wool	234	8,895	
Tobacco	4	7,776	
Cork	70	4,380	
Preserves.....	76	4,653	

No coal has been discovered, but there is an abundance of iron and copper, and some zinc, antimony, manganese, and lead.

Unfortunately the means of transport are defective, and capital and enterprise are wanting. The apathetic natives leave the exploitation of the mines to foreigners. A huge national debt has been piled up, intensifying the difficulties.

It is interesting to note that England is far and away Portugal's best customer in regard to both exports and imports.

Education in Portugal is in a strange condition. Ever since 1844 it has been free, unsectarian, compulsory, and is yet largely inoperative. In 1890 out of a population of 5,049,729 only 1,048,802 could read—a little over 20 per cent.

During my visit I only once chanced to see a man reading a book (women there were, with devotional books, passing to and from church). The sole reading is of the newspapers, of which about 400 are published, mostly small sheets.

It is usually supposed that in a country such as Portugal there are many priests and few schoolmasters. In point of fact, few priests are met, and in theory Portugal ranks very high in her educational facilities.

There is now an elementary school in each parish. The tuition is gratuitous and obligatory from 6 to 12 years old. Teachers are paid from £28 to £64 annually, with a house. The funds are found principally by the municipalities, and partly by the State.

From enquiries I made, it appeared evident that the "obligatory" system broke down very early. Hence the widespread illiteracy. A great gap divides the elementary from the higher education. In regard to secondary education there are seventeen National Lycées, one to each district. No Greek. A modern curriculum, with Latin.

At Coimbra is the only university. It goes back to 1288, and has had a distinguished career. At present there are 900 students, including few women. The course of study extends to five years.

The Government is that of a constitutional monarchy, much on the lines of our own. The reigning king is Dom Carlos I. The Parliament consists of two chambers, viz., the Peers and the Deputies. Each Parliament is elected for three years. Electors, both Parliamentary and municipal, consist of those men over 21 years of age, living in Portugal, who can read and write, and who pay a very small direct tax. Catholicism is the State religion. All other forms of worship are equally tolerated.

GENERAL CHARACTERISTICS.

It is difficult to recall the gallant little country of Vasco da Gama, Albuquerque, Joao de Castro, of those early warrior kings; of the spirited and courageous navigators; of all that Camoens celebrated in his *Lusiads*.

The bulk of the people are shiftless. They leave things undone. Like the Spaniards, they put them off until the morrow, "*amanhã*." The country is dotted about with ambitious buildings left unfinished. Their best business is done by resident foreigners. They call in the aid of other countries for work which they could easily do if they would bestir themselves.

Blind people are frequently met. They are little cared for, and beg for a living. Any day one meets scores of people with the marks of smallpox upon them.

Dirt and rags abound. Most people are prepared to beg if they see a chance of a stray coin. The trains generally run twelve miles

an hour, except the expresses on the lines owned and managed by French companies.

From the business point of view the men are amazingly inept. They have a genius for not doing what they ought to do, and for doing what they ought not to do. Their directories are a maze of names quite useless in their arrangement. Several times I consulted their own directories, but could extract no information from them.

Men sit at desks smoking cigarettes while you wait. You watch them for long, doing nothing, until presently they stroll round and attend to you.

They scorn to do anything promptly. Doubtless we hurry too much. I believe hurry is becoming a curse to us all. But in this country it is not a question of steady, unhesitating progress, it is stagnation and ineptitude.

It is pleasant to hear that in recent years improvements have been made. I hear that farmers are adopting modern machines, much to their advantages. Yet I saw many with almost prehistoric implements; and whole families—father, mother, and children—were cutting the harvest not with scythes, but with small sickles, or reaping hooks. The ploughs and harrows are of the ancient Roman type. The plough could be made for a few shillings, and may be carried on the shoulders. It doubtless has its conveniences for small hillside farms. The carts, too, are of the Roman type—low wheels, and of solid wood; no spokes. The axle revolves with the wheels. It is very strong, and is drawn by oxen. The roads are often boggy water courses.

The men are generally short in stature, and, at any rate in towns, grow fat. They are mostly apathetic—take things easily. Unlike most Southerners, they have few gestures. They are polite and kindly. At a meeting or parting they embrace affectionately, patting each other repeatedly on the back, and sometimes kissing.

BRAGA.

The journey northward from Oporto to Braga is full of interest, for the country between the Douro and the Minho is the loveliest part of Portugal. It is hilly throughout, very fertile, with great forests of chestnuts intervening. A system of small proprietorship has long been established here, the farms consisting generally of five to fifteen acres. These are cultivated with a care almost microscopic, and the result is a much higher state of welfare than in other parts of the country.

The upper reaches of the winding Douro traverse a country famous for the wine known as port, and hereabouts the hills are ridged or terraced as in Tuscany or the Rhine country. The soil is toilsomely banked up by walls, one above another.

The railway to Braga takes us through a wine country cultivated differently. As we jog along very leisurely we see an innumerable succession of farms, where everything is enbowered with the vine; outbuildings, gardens, fields, are festooned and enroofed by "the gadding vine." It hangs upon trellises, pollarded oaks and chestnuts, creeping everywhere. This, though pretty, is not the economic way

of tending the vine, and at some places it is staked, irrigated, and cultivated more scientifically.

Braga, the capital of the province of Minho, is an ancient archiepiscopal city of 21,000 inhabitants, and played an important part in the early history of Portugal. Yet it has the characteristics of a big village—particularly of an Irish village. As we passed through we noticed a line of women removing the grass that grew vigorously between the stones of the highway.

Many of the shops and houses, as we noticed also in towns and villages afterwards, were without flooring. The people lay or squatted on the ground. There was hardly any furniture; no pictures or ornaments; no attempt at cleanliness apparently. Outside was the blazing sun, and the exterior of the houses was dazzling white; inside were deep shadow and a grateful coolness, so that these cave-like rooms are a comfort in the hot weather—but the dirt and vermin are formidable enough.

After visiting a few ancient buildings we took a small tramcar (built in Birkenhead), drawn by six mules, to the famous pilgrimage church of Bom Jesus do Monte.

It is a white church, perched 1853 feet high on a neighbouring hill, and is approached, like Lourdes and other pilgrimage churches, by a series of steps, with chapels and oratories, in which are imaged scenes of the Passion and Crucifixion. A great concourse of people wend hitherwards at Whitsuntide. A sombre avenue of grand old yews leads to the entrance. Here we rest in the shade, enjoying the sound of falling water, before we begin our climb.

Entering the gateway, we find a grandiose flight of steps zig-zag up the hill. At each resting place is an oratory, consecrated to the Passion. Within are wooden sculptures, representing the scenes, step by step, of the great tragedy. Many statues and fountains give a formal pomp to this "route de calvaire." The statues are of Biblical characters. The fountains are quaint and fanciful. Five are allusive to the senses, the water flowing from the eyes, ears, nose, mouth, and hands joined in the form of a cup. Others are dedicated to Faith, Hope, Charity, Peace, Benignity, and so forth. All bear Latin inscriptions. The oratories also have quotations from the Latin Vulgate.

Above these is a grotto, from which gushes a cascade with a statue of Moses striking the rock. The sanctuary itself is a church without beauty. It contains relics, which receive much devout attention.

All this formal sculpture and these artificial objects are redeemed by the soft beauty of the flowers and trees which clothe the hill. We walk in cool shade and through a most fragrant and balmy air. At each balcony we look out upon one of the fairest scenes in Europe—a vast sea of verdure, range upon range of hills and mountains, white villages glistening in the sun—under a sky of purest light and colour.

Of all pious exercises the most devout is to visit the stations of the cross at Calvary when on a pilgrimage to Jerusalem. As this is possible to very few of the faithful, many Calvaries are constructed elsewhere, and many pictured scenes of the Passion are placed in churches or are reproduced in books of devotion. By these means

worshippers may observe the Via Crucis, thus purifying the spirit, purging away sin, fostering the feeling of devotion. "For," says a reverend father, "to devoutly meditate on the Passion of the Redeemer is more useful and meritorious than fasting on bread and water, than mortifying the body to the shedding of blood, or than repeating all the Psalms of David." Twenty plenary indulgences may be obtained and a soul released from purgatory by the fulfilment of this exercise with devotion. The worshipper should say a prayer of contrition and make an offering. Then at each station he should meditate on the suffering of the Saviour endured there, and offer prayers and supplications thereon.

The stations are:—

- | | |
|-------------------------------|---------------------------------------|
| 1. Christ before Pilate. | 8. Christ Pitying Women. |
| 2. Christ Assuming the Cross. | 9. Christ's Third Fall. |
| 3. Christ's First Fall. | 10. Christ's Garments Taken from Him. |
| 4. Christ Meeting Mary. | 11. Christ Nailed to the Cross. |
| 5. Christ Helped by Simon. | 12. Christ Crucified. |
| 6. Christ and Veronica. | 13. Christ's Descent from the Cross. |
| 7. Christ's Second Fall. | 14. Christ's Entombment. |

BUSSACO.

"Bussaco's iron ridge," where Wellington met and repulsed the French, assisted by the Portuguese troops, whom he had helped to lick into shape, is a range of hills near Pampilhosa, clothed most delightfully with ancient cedars and many kinds of forest trees. A monument records the event, and summarily states the details of the campaign.

Close by, on the summit of the hill, about 2,000 feet high, are the remains of a Trappist Monastery, now known as the Real Mosteiro. Here we stayed in a paradise of trees, flowers, and sub-tropical vegetation. One may wander for days in the deep, shadowy woods, or muse by fountains and running waters cunningly contrived by the silent brethren—probably as they had been taught by the Moors. The luxurious Moorish conquerors were very skilful in the conducting and management of water to please the eye, ear, and palate; witness the Alhambra and the Generalife.

* * * * *

Bussaco is very beautiful; the woods afford endless delight—the great old cedars set one a-brooding—and among many old friends, the forest-trees of home, are others strange and alien. Some are semi-tropical, storing their liquids under thick, leathery skins; a large proportion are indigenous; and under the hot sun there flourish numbers of trees and climbers with gorgeous flowers, which attract and hold the eye.

Nearly all our ground flowers are there, dear and altogether lovely, and with them many which I did not know; but they seemed to nod at me in a friendly way, and indeed I had a nodding acquaintance with them, for I knew their families and many of their little cousins.

There is an immense wall extending some miles round the monastery, and enclosing the choicest part of the forest. Since the secularisation of the religious houses this estate has been a Government possession, and it is now preserved with care. The gateways are picked out with coloured stones in various religious designs and emblems, and

the fountains and crosses and the grottoes and pathways are looked after.

From the summit is a noble view—mountains west, north, and south; a wooded champaign to the east, ending with the gleaming sea; not far away Coimbra, the white university city; the wooded heights rich and lovely; the distant mountains bare and austere. But there is one thing lacking in the vast mountainous expanse; lakes would soften the scene.

At Luso we sat by the public well watching the folk come for water and the women washing clothes in the stream as it flowed from the well. It was a picturesque sight. Girls, children, matrons, and wrinkled dames came from all sides, with their cantaros poised on their heads. They tripped down the slopes and through the glades. One moment we looked upon a green solitude—the next it was the background for a bare-footed damsel, her skirts tucked up round her hips, her strong legs browned and bronzed, her arms swinging freely as she strode the slope, a bright kerchief gathered in her hair, her body erect, and a red earthenware vase upon her head.

These water-jars are generally of graceful shape, and have probably been copied from Moorish times. They are balanced very daintily on a small cushion, which is placed on the head. But ugly square tin or zinc receptacles are beginning to supersede the pots. As we watched the washerwomen and the water carriers, a boy sidled up to us. I asked him a number of questions. Presently I got him to read a stanza from my copy of the *Lusiads*. He spelt his way through with difficulty, evidently not understanding much. He said he was fourteen, and that he had only gone to school when there were no jobs to do, such as donkey-driving, for the visitors at Bussaco. So much for compulsory education.

COIMBRA.

Coimbra, the university city of Portugal, was a short and vivid experience for us. When we arrived the sun was setting; he flung his darts of light across the Mondego full on the white walls of the town. It shone white, with a tinge of rose, upon the breast of the hill. Remembering our smoke-begrimed habitations at home, it seemed too fair to be real. I recalled the sight I once had of Cadiz, rising like a white cloud from the sea. We approached it from Tangiers, and as it appeared over the horizon of water it seemed a filmy evanescent thing—a rose-tinged cloud. But on close acquaintance Coimbra is a town much less fair than Cadiz. Alas for a charming exterior! It is a whited sepulchre. The streets are narrow, the houses crumbling or dilapidated, the sanitation primitive, smells and dirt omnipresent. It stands on a hill above the famous Mondego, the only considerable river which is exclusively Portuguese. Here we had hoped to hear the nightingale, so often and so ardently celebrated. What we did hear throughout the night was the clamorous croaking of the frogs.

High on the hill, overtopping the town, is the university. Here Camoens studied, and many another poet; in fact, most of the learned and many of the great men of Portugal. Here our own Buchanan

lectured at the time when great scholars were invited from divers countries to add to the fame of this seat of learning.

The students go about bareheaded, and wear dark cloaks, with an easy and *déagé* air. We were conducted through. Every room was of interest. The library was a great chamber, too gorgeously and elaborately ornamented. We saw curious, speculative, imaginative maps of unexplored countries done at the time of Vasco da Gama, much as it used to be the fashion to fill up the unknown spaces of Africa, in maps, with lions and other savage or mythical beasts.

The finest feature of this visit was a spectacle which we witnessed from a narrow balcony running outside the buildings. We hung over the city, as it were, and commanded a rich view of mountains (including the Serra da Estrella), dales, the river, and endless white buildings among the luxuriant foliage. Of course we visited the spots associated with poor Inez de Castro—the Fountain of Loves, the garden in which she was murdered—and we read Camoens the while. To him the students have erected a monument close by the college buildings. Here also we visited churches and convents until we were saturated with anciantry. Then off again “to fields and pastures new.”

LEIRIA.

Our diligence bustled into Leiria as twilight was coming on. Though we were heated, dusty, and crowded in the jolting conveyance, there was much to interest us as we entered the town. A company of field-workers returning from their labours were wading across the river, their implements on their shoulders; men, women, and children formed the group; their forms stood out stark against the western light; it was a subject for Millet.

Rising above the town is a hill, on the crest of which stands a ruined castle, very famous in Portuguese history. It was long held by the Moors, and was considered impregnable. Affonso Henriquez took it by surprise in 1135, and, using it as a base, extended his dominions southwards. It was a step preliminary and essential to the triumphant conquest of Lisbon.

I climbed the hill in the early morning, and found it a capital prospecting place. The little town, which numbers only four thousand inhabitants, lies on the lower slopes, and stretches along a rich valley on the banks of the river Lis. Pine forests cover much of the surrounding country, and beyond looms the gloomy range of hills, known as the Serra do Junto. The castle is a picturesque ruin, especially the Gothic chapel, which is sufficiently preserved to tell its story of warfare, worship, and mediæval life. Leiria is interesting as the birthplace of Lobo, and as the town where the printing press was first established in the peninsula.

BATALHA.

Of all the buildings in Portugal, that which excited our curiosity the most was Batalha, the “Battle Abbey,” and great monument of Portugal’s independence. We took a carriage, furnished with provisions for the day, and left Leiria while yet the birds were twittering

their matin songs. But the hot sun soon overtook us, and made us glad to seek the shade of the many plantations of pines.

Arrived at Batalha, we found it, at first sight, a pile or cluster of Gothic buildings confusing to the eye. They stand on low ground, environed by hills at no great distance, which give a cup-like formation to the district. The church and adjacent structures were in process of erection from 1388 to 1551, and were left uncompleted, like so many other ambitious buildings in this country. It was begun by Dom Joao I. as an act of national thanksgiving in commemoration of the victory over the Spaniards at the neighbouring village of Aljubarrota.

The main church has a familiar appearance to English eyes, for English builders of Gothic worked upon it. They were invited over by Philippa, daughter of John of Gaunt of Lancaster, wife of the king. They carried out the style of fifteenth century Gothic, familiar in our churches.

A chapel and tomb of great magnificence are dedicated to the royal pair, and the chapel became the mausoleum of their descendants. Here lie the remains of Prince Henry the Navigator, and of Ferdinand the "Constant Prince," of whom Calderon wrote in his play.

It is unnecessary here to give a description of Batalha. Any who may be interested in a perhaps unparalleled national monument will do well to refer to Murphy's book, with its careful drawings and plates. There is a copy in the Manchester Free Reference Library. This book is regarded as authoritative by the Portuguese themselves. The monument consists of the church, with its founders' chapel, the chapter house, cloisters, second cloisters, and the capellas imperfeitas, or uncompleted chapels, which are the pride of the nation, though they stand open to the sky, an example of frustrated ambition, of decayed fortunes, and of subsequent impotence.

Much mischief was done to this fine pile of buildings by the vicissitudes of time—rain, floods, and, most of all, by the awful earthquake which wrecked Lisbon. When in the last century the nation decided to make it a national monument, an annual sum was voted to restore and maintain it. The restorations have proceeded continuously. Fortunately they have been confined to the damage done by "time's decaying fingers," and it is still true that "beauty lingers" in this noble group of ecclesiastical edifices.

The quarry whence the original stone was cut is near by, and still furnishes its brilliant white marble to the restorers. It is a stone which mellows into a rich golden tint, and it is no exaggeration or poetic license to say that under the ardent Lusitanian sun Batalha glows with a golden richness entirely foreign to anything seen in England.

From Batalha we drove to Alcobaca, reference to which I reserve for another occasion.

ART.

Portugal is not rich in art treasures. True there is much to make the antiquarian's mouth water—remains Gothic, Roman, Moorish, and yet earlier; these, too, in abundance in every stage of dilapidation.

But there is little of the highest forms of beauty in paintings, sculpture, or architecture. The churches are usually uninteresting, many of them ugly. Batalha is a magnificent exception. The old Cathedral at Coimbra is a massive, fortress-like example of the Romanesque style, standing firmly upon the hill with an appearance of solid strength as if the centuries could not touch it. These are almost alone, except for a singular and exclusively Portuguese development in architecture, the Manoelino style.

MANOELINO STYLE.

It takes its name from King Manoel, known as "The Fortunate," who reigned 1495-1521. This was the glorious and triumphant period of Portuguese history, to which our Elizabethan time may be considered a parallel. The many conquests and discoveries of foreign lands gave an impress to the art of the time, particularly in architecture.

Architects and sculptors, interpreting the soul of the adventurous little nation, wrought many things in stone which had hitherto found no place there. The fauna and flora of strange lands; phenomena of the sea; algae, corals, shells, madrepores, buoys, cables, cordage, rigging, etc.

The Tower of Belem is an example of this, with its eastern turrets, etc., or the Castello da Pena, and many splendid churches—*i.e.*, Thomar, Santa Cruz, Batalha, Belem. In all these the exuberant life of the time was expressed; its daring, its adventurousness; the sea—scene of so many triumphs; the people and things of the foreign countries then in vassalage to Portugal. Many of the sarcophagi of the great men are lavishly adorned in this style. It is far too tortuous. The stone is forced from its legitimate functions. The style lacks simplicity, dignity, reserve. The artist never seems to know when to have done, elaborating to excess his coils and figures and swarming details about the windows and doorways. But for grandiosity and a certain semi-barbaric fascination, it has an undeniable effect peculiarly its own. In the Capellas Imperfeitas at Batalha, the cloisters there and at Belem, and the Belem Church itself, it possesses a rich and remarkable beauty.

One other form of art attracts attention in Portugal—that of tiles, or azulejos. It is an art borrowed doubtless from the Moors. They are generally blue and white (the colours of the sky). In early buildings they were used as ribbons running along the walls; later a freer treatment came into vogue, and finally entire scenes were depicted. They are employed upon the exteriors and interiors of both houses and churches. Some of them are of extreme delicacy of colour; but to a northern eye they seem cold and unsuited to church decoration.

CINTRA.

Many writers, led by Beckford, Byron, and Southey, have accustomed English readers to regard Cintra as one of the show-places of

the world. A passage from Southey is worth quoting as an expression of his glowing love for Portugal:—

“I have actually felt a positive pleasure in breathing there; and even here the recollection of the Tagus and the Serra de Ossa; of Coimbra and its cypresses and orange-groves and olives, its hills and mountains, its venerable buildings and its dear river; of the Vale of Algarve, the little islands of beauty in the desert of Alemtejo; and above all of Cintra, the most blessed spot in the habitable globe, will almost bring tears into my eyes.”

Cintra lies on the slopes of the Serra de Cintra, a granite range of hills about seventeen miles to the north-west of Lisbon. From all directions, whether inland or far out at sea, its fantastic crags catch the eye. On closer acquaintance these hills (which are only of moderate height, over 1,700 feet) are found to present sharp natural contrasts. To the north and east the slopes are covered with a marvellously rich vegetation; to the south and west, looking towards the sea and the mouth of the Tagus, the rocks are bleak and bare.

Cintra nestles among the luxuriant foliage by the water-courses. From its proximity to Lisbon, it has for many centuries been a place of summer residence for the wealthy and the luxurious. Here the Moors built their summer palaces and crowned a frowning eminence with a fortress, the ruins of which still stand boldly against the sky. They enjoyed the abundant water, the shade of many trees, the fresh mountain air, the fragrance of flowers, the song of the nightingale, and the murmurous hum of innumerable tiny-winged creatures as the pageant of summer passed before their pleasure-loving eyes. Cintra indeed was to them what the Alhambra and the Generalife were to their cousins in fat Andalusia.

Subsequently, when Affonso Henriques, not without the help of English Crusaders, wrested Lisbon from the Moors, the Portuguese kept up the royal residence built by their cultured opponents, and to this day it stands in the centre of Cintra, a quaint blend of Moorish and Christian styles of building and decoration. When the Queen Dowager is not in residence, visitors are shown through the house, which is of great interest from its association with so many salient events in the national history.

It is useless to attempt a description of Cintra. A few words referring to its main features must suffice. It has remained and is still the summer resort of the rich folk of Lisbon. Many lovely houses dot the hill-sides, half hidden by embosoming trees. High above on the bare crags are famous and very singular monuments. The Arabic stronghold, which you approach through a vast tangle of odorous myrtle; the *Castello da Pena*, whilom a prison for the refractory monks of Belem, a convent, and a chapel—now a royal castle, which is a reproduction of the typical mediæval castle. Surely never was there a building more fantastic than this.

It stands, like its Moorish neighbours, on a rocky peak. Its battlements, towers, gateways, vaults, passages, dungeons, and all the paraphernalia of such a stronghold as might figure in some story of plot and counterplot, horror and bloodshed, recall one of Gustave Doré's fantastic dreams rather than sober fact. Below the castle is a large domain of beautiful gardens. But even these are

inferior to the gardens of the Quinta de Monserrate, the residence once occupied by the eccentric Beckford, that brilliantly-gifted man whose misfortune it was to be so fabulously and ruinously wealthy.

Had he had less worldly gear, how much better off he would have been! and what might he not have accomplished with his extraordinary gifts!

The house is still owned by an Englishman, who enjoys a Portuguese title. It is a sham oriental palace, very magnificent and rather absurd. But it is surrounded by enchanting gardens, certainly the most lovely I have ever seen in any country. Here the luxuriance of the Portuguese vegetation attains an unexampled degree. Beckford laid out these gardens on a lavish scale, and had botanical rarities brought from many parts of the earth. A deep gorge divides the hill on which the house is built, and down this flows a stream which the gardeners use with all their cunning. Ferns of many kinds, including giant-ferns, blend with a bewildering profusion of flowers, shrubs, and trees. In these exquisite gardens west meets with east, northern with sub-tropical vegetation, and a rich variety of plants, the natural habitats of which are in the water, on the plains, or up the hillsides.

FLORA.

The climate of Portugal is singularly favourable to exuberant growth. Few countries, if any, embrace so wide a flora, including plants from the temperate to sub-tropical climes. The cereals spring up rapidly and abundantly. Oranges, lemons, peaches, almonds, nespras, and many other fruit-bearing trees abound. Great tracts are covered with olives, looking very sober and of a leaden hue, until the sun turns them into silver. Gourds and melons are nurtured in the fields which are hedged by aloes, cacti, and agaves (the century plant). Cork oaks are abundant, and many trees bearing bright flowers.

Rich as the natural flora of Portugal is, it has been greatly diversified (like the English) by modern importations from other countries. The splendid discoveries of unknown countries by the early navigators led to the introduction of many strange plants, shrubs, and trees; conifers from Brazil; the Bella Sombra oranges and mangoes from East India; the large magnolia from Central America; camellias from Japan; the shady loquat from China; gum trees from Australia, etc. The maize, which now makes many a valley smile in the sunlight, is a comparative newcomer.

All these flourish in Portugal, for, though an integral part of the Peninsula, with the same mountains and rivers, it escapes the harshness and dryness of the Spanish tablelands. The ocean brings its mists in the mild and rainy winter; the generous sun glows upon and warms the humid soil for many months, and the consequence is a flowery and fruitful land perhaps unparalleled in Europe.

LISBON.

Though Lisbon is only about half as large as Manchester in population, it has all the phenomena of a metropolis. Figures are

apt to be misleading, unless considered relatively. The entire population of Portugal is less than that of London, and its affairs are officially centred in the capital more exclusively than in most countries. There are but two exceptions of importance, viz., the university life of Coimbra, and the considerable bulk of business transacted through Oporto. The remaining ports are of slight importance, despite the long sea-board of Portugal and its past renown as a maritime power.

In some ways metropolitan Lisbon is less interesting than the smaller towns. One sees scraps of many nationalities, little of the distinctively Portuguese nation. In the streets negroes, creoles, mulattoes rub shoulders with white English folk and dark continentals. Few costumes of the country are visible; the ladies copy Paris more or less distantly, and the men "with money in their purses" absurdly wear silk top hats upon their heated brows. The dress of the great public differs little from our own, but the women like a gaily-coloured kerchief on head or shoulders.

As might be expected, Lisbon is drilled pretty well into uniformity with other big cities; electric tramcars, elevators, shops like those of Paris or London; squares, monuments, fashionable resorts, promenades; the police and all the apparatus of law and order; these are the things which, however useful, eliminate national traits and peculiarities.

Seen from the river or from across the water, the spectacle of the city and its setting of low hills is strikingly beautiful. Like Rome, it is built upon seven hills, though these are not easily distinguished. The Tagus is about two miles wide immediately opposite to the city, and on first acquaintance you look across the bright water at its piled-up buildings, delighted at the "coup d'œil," and eager to explore so soon as your foot is ashore. Afterwards when each quarter is known, when the notable churches, towers, domes, palaces, and those green tracts which tell of shady parks may be distinguished, there is a double pleasure. You look upon the general scene of flashing water, of unclouded sky, of a hot, white city, vast and multitudinous, yet embraced in the glance of an instant; and at the same time you recall your experiences at each place as your eyes pass from point to point of the panorama now grown familiar.

Lisbon is not rich in fine work of the past. It contains few, if any, beautiful churches or other buildings. The great earthquake may partly account for this, but Lisbon is emphatically modern. One church there is a little way out of the city—the Convento dos Jeronymos de Belem—of great interest and beauty. It stands on the site of a chapel built by Prince Henry the Navigator, in which Vasco da Gama spent the night in prayer before he set off on his memorable voyage of discovery. Here, too, he was received on his return.

King Emmanuel I. straightway fulfilled a vow he had made by laying the foundation stone for a magnificent convent and church as an expression of national thanksgiving. The church is one of the most satisfactory in the flamboyant Manoelino style, to which I have already referred. The main entrance is lavishly loaded with sculpture, pinnacles, balconies, niches, and all the exuberant fancifulness of the time. This cloying richness is also manifested in the splendid cloisters and on the great pillars which support a lofty nave.

Yet the general effect is pleasing and impressive. The cloisters, indeed, take your breath away by a kind of brilliant bravura beauty very foreign to our quiet cloisters at home. Somehow the fanciful and elaborate carving seems in keeping with the brilliant sunshine and the gay cloister garth, with its parterres of flowers.

The Belem Church has become the Westminster Abbey of Portugal. It contains the tombs of many great ones, including King Emmanuel, Da Gama, Camoens, and now a handsome chapel in honour of the historian Herculano.

I will not attempt to describe the buildings of Lisbon in detail. They are not remarkable. Perhaps the most notable is the church of the Carmo, a ruined Gothic church which stands gaunt and roofless, pretty much as the earthquake left it.

The public parks and gardens of the city are delightful, most of all the famous Botanic Garden. After toiling along the hilly streets, to escape from the sun and rest in these shadowy oases, where nature luxuriates in marvellous fertility, is an unforgettable pleasure.

MOTHER OF WATERS (MAI D'AGOA).

High on the brow of one of the hills of Lisbon is a vaulted chamber containing a store of water for the needs of the thirsty city. 'It is the Mai d'Agua, the mother of waters. Hither the precious fluid is conducted across valleys and through hills; hence it is distributed to every quarter of the city, gushing into those public fountains to which the women resort with their water pots.

Curious to see something of the inside of the famous aqueduct. I climbed through the streets, hugging the shady side, and arrived at a house which was also a post office, rang the bell, and was admitted into a yard with a garden at one side. A group of men were chatting under the trees, and one of them came forward to conduct me. He was a middle-aged man, sour of visage, which was wrinkled yet fresh, like the shrivelled apples we sometimes see. I found him a patient, steady, kindly fellow. He showed me the reservoir of water, held in a square hall, vaulted, four pillars descending into the water. It was fed by what seemed a small rivulet to supply so large a population; this splashed down a grotto-like fountain, and joined the calm reservoir, which is 98 feet long, 82 feet wide, and about 32 feet deep. The guide gave me of it to drink, and then led me up flights of steps above the fountain to the aqueduct itself.

I remembered George Borrow's enthusiastic description:—

"I boldly say that there is no monument of man's labour and skill, pertaining either to ancient or modern Rome for whatever purpose designed, which can rival the water works of Lisbon; I mean the stupendous aqueduct whose principal arches cross the valley to the north-east of Lisbon, and which discharges its little runnel of cool and delicious water into the rocky cistern within that beautiful edifice called the mother of the waters, from whence all Lisbon is supplied with the crystal lymph, though the source is seven leagues distant."

Perhaps Borrow's encomiums seem exaggerated, especially in view of the vast engineering achievements of our time. The vaulted

chamber can scarcely claim to be beautiful, except in its adaptability to the purpose for which it was built. But on entering from the hot streets and the glare of the sun, it is singularly refreshing to hear the plash of water, to breathe the cool air, and to walk by the deep ingathered water, resting one's eyes in the shadows of the vaults.

It is remarkable that this great work was accomplished when Portugal had fallen from her high estate—1729-49.

It stands 265 feet above the Tagus, and stretches across the country a distance of fifteen miles. It partly burrows underground, and is partly carried high above the valleys to maintain a gradual fall throughout. Near Lisbon it crosses the Alcantara valley by means of a viaduct half a mile long, the loftiest of 35 arches being 204 feet high.

I was conducted inside the aqueduct, a causeway or gallery about eight feet high and five feet broad. The water flows in a small channel at either side, perhaps nine inches wide and deep. The underground portions are furnished with shafts. We walked along the gallery to an angle where the aqueduct changed direction. Thence we could see it to a great distance dying away in perspective.

On returning the guide led me to a flat roof over the reservoir, when we enjoyed a wide view of city, river, and country.

PORTUGUESE BULL FIGHTS.

Here as in Spain the bull ring furnishes the national pastime. In the summer it engrosses the attention and energy which are expended among us upon racing, cricket, football, and other sports. The only rival sport of which I saw anything was "Pelota," but it hides its diminished head as a rival to the bull ring.

We attended what was described as the principal corrida of the year at Lisbon. Two months previously, Fernando d'Oliveira, a favourite bull fighter, had been killed in this ring. A special effort was made to raise a sum of money for his mother and sisters. Announcements were made of a—

CORRIDA EXTRAORDINARIA.

Homenagem a

FERNANDO D'OLIVEIRA.

All performers were to give their services. The King and Queen of Portugal were to attend, and the privileged and private places of the ring were to be thrown open for subscription. An aristocratic committee were managing the affair. There was much excitement. The papers puffed the coming event. Tickets were at a premium.

When Sunday came a large section of the Lisbon people hastened to the Praça dos Toros, and the Avenida da Liberdade was gay with thronging multitudes. Innumerable carriages and open trancars bore their loads of excited pleasure seekers.

The bull ring is a vast amphitheatre open to the sky, and differing but little in essentials from the Coliseum of the Romans, or indeed

from the modern circus. When crammed with people it presents a spectacle hardly to be excelled in brilliance, gaiety, excitement, bravura. All classes are seen, from the King and his court in the royal box to the shabbiest of those who pick up a precarious living in the streets. All are merry, expectant, polite according to their codes of manners. A buzz of excitement fills the ears; vendors of cushions, fans, journals, photographs, light refreshments, call out lustily. Women gracefully draped in mantillas and their finer sisters in hats far less becoming (for the well-to-do ladies are turning from national to Parisian fashions) flutter their fans and add colour to the scene by their light dresses.

The bull fights in Portugal are much less bloody than in Spain. No horses are maltreated and sacrificed; the bulls are not slain; nor are the risks to human life nearly so serious; the points of the bull's horns are covered with rubber or leather balls, or some such protection.

There is first a parade of all the coming participators in the fight. They are dressed picturesquely and very punctiliously in traditional costumes. The cavalheiros, in antique court dress, powdered hair, three-cornered hat, velvets, silk stockings, sword, and other finery, salute the King and the assembled multitude, then exhibit highly-skilled management of their beautiful horses, passing them through many evolutions.

The procession departs, and presently one of the cavalheiros appears alone on horseback; a trumpet sounds, a barrier is withdrawn, and into the arena rushes a bull. A few capinhas have entered the arena, and they attract the bull hither and thither with their coloured cloaks. They are extraordinarily agile, and frequently leap over the barriers at the instant when the bull tries to impale them. The horseman is armed with a long bandarilha. He tempts the bull to rush at him, and by nice management of his horse he keeps just ahead of the bull's horns, while he crashes the barbed bandarilha into the beast's shoulder, leaving it hanging in the flesh. This is repeated several times.

Frequently the bull gives him no time, or edges him against the barrier, or out-runs or out-manceuvres him. At such moments the capinhas interpose their gay cloaks, to which the bull always turns and blindly dashes.

When the horseman departs the capinhas engage the bull themselves, repeatedly baffling him with their endless tricks.

Sometimes they will stand perfectly still as the maddened creature thunders upon them, and at the moment he lowers his head they plunge their smaller bandarilhas into his shoulders, and leap aside with a swiftness and grace hardly credible.

When the bull is exhausted or bewildered another company of performers, the Moços de Forcado, march up to him and try to bear him to the ground. The leader leaps upon the bull's head between the horns. Another seizes his tail; others jump upon his back. The poor animal rears and butts and rushes about wildly. Often he scatters all his foes. This part of the performance is very dangerous to limb and even life.

Finally a herd of tame oxen amble peacefully into the arena. The bull seeks their company. They surround him and gently urge him off the scene, to the sound of their tinkling bells and the laughter of the sightseers.

A corrida may consist of ten such combats with different bulls. Each has his owner and trainer; his colours and ribbons. The on-lookers eagerly criticise his points—his strength, spirit, resource, trickiness, experience; for many become quite *rusé*, and know when to use discretion and when to crash down with their great weight and strength.

Even the Portuguese bull fight is dangerous, though so much less gory than the Spanish. Men are thrown and trampled upon, especially the *Mogós de Forcado*. Horses are occasionally bruised and roughly treated. Sometimes a bull will leap over the barrier, and the performers must then be on the alert.

As we watched we saw this happen. The bull was over quickly, and the men were in each other's way; one fell as the bull butted at him. In a moment he was trampled underfoot, and we saw him carried off by four of his companions, white, limp, and bleeding. As it happened he was not very seriously injured.

LOTTERIES.

The only means of excitement to compare with the bull fights is the periodical lottery. Coupons for the public lotteries are sold everywhere in the cities—not merely in shops, but in the streets, like matches and evening papers with us.

As you sip your coffee *al fresco*, or lunch in a café, you receive a small procession of shabby persons, beggars or vendors of lottery tickets. Sitting one day in the *Avenida da Liberdade*, we observed a young fellow marching about, followed by a goat, which he had trained to keep at his heels. It was decked in ribbons, and covered with announcements of the next lottery, and with tickets for sale. This ingenious youth, kind to his goat, fanciful in his scheme to extract *tostoes* from our pockets, evidently drew the line at work in which steadiness and elbow-grease were needed. He preferred to loll about half naked in the sun, and to take his precarious chance of a bare living. He, like many of his customers, was "born tired."

They are always hoping to get something for nothing. It is a feeling by no means confined to Portugal. We may see it in all countries, and not least in England. But it is not seldom our habit to express horror at various forms of gambling and speculating, then to fold our arms and do nothing to arrest it.

This kind of thing often causes people of other nations to stigmatise us as hypocrites. What we do covertly, they proclaim openly. What we shrink from acknowledging, yet practise widely, they organise officially, so that it is at least known, and may be duly appraised.

As regards lotteries and other phases of gambling, they are maintained by a craving even more general than the "haste to get rich." The exquisite, staking his gold pieces at Monte Carlo, is in the same galley with the ragamuffin in the sunlit streets of Lisbon, who scrapes a few coppers together to buy a fraction of a share in the

lottery; both wish to escape from the monotony of the common round; to play with hazard and see what will turn up; to ask Dame Fortune for a respite from the dulness which haunts lazy people.

We may gird at lotteries, but let us not forget the journalistic "missing-word" competitors and "buried-treasure" seekers in our own country. We may wax indignant at bull fights; our football matches are not dissimilar, and are quite as dangerous. Nor can we plume ourselves on the gentleness and refinement of fox-hunting, or on the valour of slaying pigeons. There is folly enough and to spare in both countries, especially among idle folk.

Before closing, a few words may not be amiss to any who think of making a trip to Portugal. To see the country, one must be prepared to face a few inconveniences. Only at two hotels on our route—those at Bussaco and Cintra—was English or French spoken. Spanish is generally understood. Even at Oporto and Lisbon Portuguese and Spanish were the only languages understood.

The hotels of the country are generally plain, clean, and inexpensive. Often the walls and floors are bare. Our hotel at Lisbon was of a high class; the floors were cleaned each evening, and yet we watched mice running about the dining-room floor. Nor was this experience confined to one place. The food is good and substantial. The meals are: A morning cup of chocolate, a lunch towards noon, and an evening dinner. These are very copious meals, several courses sometimes preceding a dish consisting of a steak and two or three eggs, sweets and fruits following. Luncheon and dinner always wound up with tea, and you were asked whether you preferred green or black tea. The Portuguese serve bacalhão or dried codfish at nearly every meal, cooked in a bewildering variety of ways. It becomes tiresome, though the natives regard it as an unsurpassable delicacy. Outside the big towns the fare is a little trying to delicate appetites, though it is wholesome enough.

The sanitary arrangements leave much to be desired.

Travelling by railway either first or second class is fairly comfortable, but very slow. There are good restaurants, with table d'hôte for long-distance trains, at stations of quite minor importance. Light refreshments are sold from the platforms, including water. The most frequent cry at the stations is invariably: "*Quem quer água?*"—"Who wants water?" It is always fascinating to watch the country folk in the stations.

A little patience and goodwill will carry the traveller through all his difficulties in Portugal—or, for that matter, in almost any country. Decent behaviour and courtesy are the true credentials everywhere. In Portugal there is a general disposition to be friendly. The people are kindly, though not, I think, demonstrative, in comparison with other Southern people.

I hope to have the good fortune to visit them again. They may be a listless and decadent people, judged by our usual standard, but they appear to get quite as much happiness out of life as we do, and to make less fuss about it. They have their ways, we have ours; each may have something to learn from the other; at any rate, it is always worth while to understand each other in a sympathetic spirit.

THE SURVEY ATLAS OF ENGLAND AND WALES.

Designed by and prepared under the direction of J. G. BARTHOLOMEW,
F.R.S.E., F.R.G.S.

JOHN BARTHOLOMEW and COMPANY, Geographical Institute,
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Reviewed by HENRY T. CROOK, *M.Inst. C.E., Lt.-Colonel 3rd Lancashire
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FROM the time of that "most high, most potent monarch, JAMES of Great Britaine, France and Ireland, King; the most constant and most learned Defender of the Faith; enlarger and uniter of the British Empire; Restorer of the British Name; establisher of perpetual peace, in church and commonwealth, President of all princely virtues and noble arts," we have been awaiting another delineator of "the Theatre of the Empire of Great Britaine; Presenting an exact Geography of the Kingdomes of England Scotland Ireland, and the Isles adjoyning." Nigh upon ten generations have passed away since "His Majestie's most lowly and most loyall subject and servant" John Speed "consecrated his labours" to his "high and Imperiall Maiestie," and as yet he has, if we except Bishop Gibson's edition of Camden's *Britannia*, no successor. Camden however was Elizabethan and his ideas, true to his age, were spacious. Speed was no doubt influenced as his "consecration" implies by the recent union of North and South Britons under one monarch.

It is curious that in spite of these two great exemplars of geographical description the work of their successors in this country developed a more and more sectional character, so strong and all-prevailing that under its influence our national cartographical institution, the Ordnance Survey, sank to almost unmitigated parochialism. Twenty years ago or so it had almost conformed to the ideals of the "Patriots' Club, where the village alehouse is the senate and the parish pump the palladium of microscopic nationhood. By severe prodding the Survey has been at last aroused to some dim notion of its failings, and in its own awkward clumsy way is trying to do better. Recently in its large scale map it has, like the *brown cow*, been peering over the parish hedge to see what is on the other side; having been goaded to the point of view which the bovine intellect sought voluntarily.

Topographical maps upon which all on one side of frontiers is blank are irritating absurdities. In border regions stand the enduring barriers which have sometimes set bounds to the march of conquering legions or even to the more subtle influences of a new faith; there often still lie the marks of the ebb and flow of great tides in the affairs of nations; they are the most profitable fields for the study of the relationship and effect of physical features on human movements—racial, social, and political—and therefore demand the best skill of the cartographer in the production of the most faithful and complete work of which his art is capable.

To nations having land frontiers the topography of such regions has on military grounds additional importance; in fact the true topographical map had its origin in military requirements. The earlier makers of staff maps had however perforce to stay their operations at the boundary lines of their own countries, but the defect has in most countries long since been remedied by the transference of the necessary information from the maps of their neighbours. In our own little country, where neither necessity nor policy called for it, the sectional idea has so long held absolute sway that it seems wellnigh impossible to get away from it. More than one hundred and twenty years ago the Ordnance Survey started out to make a uniform military map of the United Kingdom and the work is not yet accomplished. The maps of England and Scotland on all scales still stop at the "frontier."*

The deficiencies in State cartography are necessarily more or less reflected in the work of private firms. Nothing completely satisfactory can be done, without great labour and expense, by private enterprise until the Government has provided a thorough and uniform topographical survey of its territory. It is in those countries where the Government has been most active in catering for the cartographical requirements of the people that we find private enterprise the most flourishing and its productions of the highest quality. Uniformity and completeness are the last things the Ordnance Survey thinks of. It is ever changing its style and methods.

Another difficulty with which private cartography has had to contend in this country is the dog-in-the-manger attitude which the Ordnance Survey has maintained towards it. Until quite recently the Survey would not produce small scale or general maps on the ground that to do so would be an undue interference with private enterprise, whilst at the same time it refused the use of the materials without which private enterprise could not undertake the work.

The Committee which sat in 1892-3 to inquire into the Ordnance Survey, impressed by the weight of evidence in favour of more general maps on scales of less than one inch to the mile, recommended that those authorised be proceeded with, at the same time observing that it would not do to allow private map makers too much information, as they might produce maps which would seriously compete with those of the Government establishment; a quite unconscious but delightfully ingenuous admission that private enterprise would probably make a greater success of the business than the Ordnance Survey. That one firm, at least, could do so the "Survey Atlas of England and Wales" is sufficient evidence. In skill of draughtsmanship and beauty of execution it is admirable. It shows that in the Edinburgh Geographical Institute of Messrs. Bartholomew we have an establishment which is capable of the highest class of cartographical work. If the Ordnance Survey could only be induced to combine with such an establishment in the production of a general map of the United Kingdom we could have the face of our country portrayed in a style equal to, if not excelling, any yet seen at home or abroad. The Ordnance Survey—Yes, again, but it must be remembered that Mr. Richard Babley was not writing a monograph on the Civil War—the Ordnance Survey cannot

* Since this was written the Ordnance Survey has published the one-millionth map of the United Kingdom.

be left out of consideration in a notice of such a work as the Survey Atlas. A paragraph or two of conventional platitudes in the way of praise with perhaps a few niggling objections thrown in to show the acuteness of the reviewer, would be easy but inadequate. A fuller criticism demands that the circumstances and conditions, the limitations and difficulties with which the projectors of so great an enterprise have to deal should be fully set forth and kept in mind.

Why this atlas is limited to England and Wales is not apparent, for Messrs. Bartholomew have published a map of Scotland on the same scale and style as the 67 sheets of what is called the topographical map forming the principal part of the present work. The main difficulty arising from *laches* of the Ordnance Survey has been overcome, for the two Border sheets are filled up with the detail from the Scottish sheets, but the height colouring most unaccountably stops at the "frontier." Dr. Mill, who is responsible for the physiographical section of the descriptive text, says: "It is surprising how distinct the northern and southern portions (of Great Britain) are physically as well as historically; and there is no violence done to fact by treating England and Wales by themselves. The coast lines are more uniform in outline less indented and far less deeply fringed by off-lying islands than those of Scotland." As a defence of the sectional idea in British geography this is neither lucid nor convincing. "There's milestones on the Dover Road" would be equally good reason for the separate treatment of Scotland. "The Cheviots," he says, later on, "form the most northerly mass of high land in England; *the northern part indeed belongs to the southern uplands of Scotland.*" (The italics are not Dr. Mill's.)

The Cheviots form a fairly solid fact, both physically and historically, to split in two at the commencement of the study of the influence of natural features on the development of our people, but it must be mapped in two sections because the English coast line is less indented than that of Scotland. Do we want to see why the two nations met on Flodden Field, we must have a separate map because Rum and Eigg are in the Scottish fringe. Do we desire to understand the desperate effort of the chivalrous Montrose to bring help to his king in the dark days after Naseby, and how David Leslie, rounding the eastern end of the Cheviots, cornered "the Great Marquess" at Philliphaugh, we are denied a uniform portrayal of the arena because Ulva calls to Fadda in the "Black" country of the West. Do we want to see why Cromwell, to the terror of the Parliament, let Charles the Second slip away by the south-west road to England, or to study the moves in the combined pursuit of the King with Harrison and Lambert which led to the field of the "crowning mercy," we must have another atlas, because we have only the Scillies to set against the Shetlands. Do we desire to follow the campaign of Prince Charlie in the '45, after the stampeding of Johnnie Cope's men from Preston Pans to Berwick—the utilisation of the features of the Border country in the mystification of General Wade,* waiting on the eastern road whilst the Highland army passed southward to Derby by the western way; then the subsequent retreat, with the "Butcher" thundering after

* Wade, of Highland Road fame. Amongst the officers of Wade was one Roy, the founder of the Ordnance Survey.

them, which movement Wade ought to have intercepted but did not—we must have two plans, because the existence of Ultima Thule justifies separate treatment for the land across the Border. No, the practice is indefensible. The really surprising thing is that anyone can be found to attempt its justification. Physically to a large extent, historically of a certainty, the region from the Wall of Hadrian to the Wall of Antoninus, or further to "the Highland line," as much concerns English as Scottish geography. Separate treatment of North and South Britain in any case is preposterous. Broad views of a nation and its "adjoinings" are necessary to correct ideas in geography, and that science will never take its proper place in education until we get rid of the watertight-compartment system in treating of our own land.

In the series of eleven general maps with which the "Survey Atlas" commences there is in the more important some departure from the purely sectional idea, but still they are not complete. The Depth and Height map, the Geological, Vegetation, and Density of Population maps are very finely executed plates, on the scale of $1/1,700,000$,* or 1 in. = 26·83 miles, but no one of them gives "the Theatre of Great Britaine and the Isles adjoining." All are more or less cut down and therefore incapable of the full uses which such maps should subserve. It is greatly to be regretted that such good work should be largely deprived of its value and usefulness by adherence to an absurd tradition in British cartography. Density Productions and Occupations maps which give no information with regard to Ireland the Highlands or Isles are practically useless for most of the larger social, political, and economic problems of our time. In the same way the Depth and Height map (the Bathy-orographical in geographers' jargon) should extend at least as far west as the Rockall Bank and east to the coast of Norway. Or, take the case of the Geological map. The Director of the Irish Geological Survey says throughout the inconceivably prolonged lapse of time from the Permian to the Cretaceous period "Ireland contributed to the future mineral wealth of England; she stripped herself to clothe her sister, and to supply materials for protecting from atmospheric waste her vast stores of coal, upon which her greatness and prosperity now so largely depends; this debt ought never to be forgotten."† Probably most Englishmen are unaware of this colossal claim. It were well they should inform themselves against the day when the Irish Party in the House of Commons shall raise the question of an audit of accounts between the two nations from the Carboniferous Period.

The exigencies of space of the ordinary atlas form of publication may be pleaded as excuse for spoiling good maps by cutting down. But why the atlas form at all? Is it not only another tradition both cumbersome and hampering? The fuller and freer use of the maps would be much facilitated if they were placed in a portfolio and the descriptive text statistics and indexes in a handbook of reasonable size. There are few things more exasperating than referring from page to page in a huge ponderous and unwieldy atlas.

* Bradshaw Railway Guide map is about 1:1,700,000.

† The Physical Geology and Geography of Ireland, by Edward Hull, M.A., F.R.S. London: C. E. Stanford.

In the Density and Agricultural maps the space which might have been given to Ireland is wasted upon small scale inset maps giving statistics by counties. Here again we have the survival of an antiquated practically useless misleading and unscientific mode of treatment. County boundaries no more regulate the distribution of population or crops than they govern the amount of rainfall or the variations of temperature. Density by counties makes the industrial population on the western shore of Windermere, or about Coniston, equal to that of Manchester or Middlesex—that is, the maximum or the eighth degree of density. The eastern shore of Windermere, being in Westmorland, is only in the second degree. The second degree means 10 to 25 persons to the square mile, the eighth degree over 500; so that we have the western shore shown as having an industrial population twenty times as great as the eastern. By counties, Walney Island is shown to have an industrial population of the eighth degree and an agricultural population of the fifth degree, whilst on the General Density map it is shown as uninhabited. Rainfall and Temperature maps arranged on a like principle would give equal rainfall and temperature to Llandudno and the summit of Snowdon because they are both in Carnarvon, or to Grange and Pendle Hill because both are in Lancashire.

On the map showing General Density of Population (Plate VIII.) the right principle is adopted, that of curves delimiting the zones of different degrees of density, after the manner of Rainfall or Temperature maps. Owing to the sporadic character of the dense districts, the sudden variations of intensity and the lack of correspondence between the statistical areas and the zones of different degrees, the difficulties in constructing a graphic map of population statistics are considerable, due allowance must be made for them.

There is but one way—or at least but one which will give anything like truthful results—that by the number of houses per unit of area. It is not unlike contouring a difficult piece of country where the slopes are often steep and sometimes precipitous, a given number of houses or persons per mile or other unit being substituted for the vertical interval between contours. If the degrees of density to be indicated are numerous, the unit must be small, and a long and laborious analysis carried out on large-scale maps is necessary. The analysis of the maps taking the place of the levelling and surveying operations by which ground contours are determined, and curves denoting density per square mile taking the place of curves defining the elevation of ground.

How the data for this map were obtained is not stated, but too much has been attempted. Between the urban districts and the uninhabited zone there are seven grades—that is, there are, or should be, eight population curves depicted. This in districts of rapid variations in density, as in the hilly districts of East Lancashire West Yorkshire and South Wales, is too many for the scale of the map; the consequence is that the intermediate lines are often dropped, and once dropped are not taken up again as they could and should be wherever there is room for them. Thus we plunge from uninhabited country to the six or seventh degree of density. There are hundreds of miles of what we may call population precipices running about the

country on this map. Such precipices exist, but with nothing like the continuity here displayed. Many valleys are shown to have as dense a population at their heads as after a course of several miles. The Manchester reservoirs in Longdendale are apparently in a valley of the sixth degree of density and the waterworks of Bolton, Bury, Oldham, etc., are all more or less in the sixth or seventh degree. A band of the seventh degree runs right across the watershed over the summit tunnel between Littleborough and Todmorden. This class of error moreover is not confined to regions of complexity, for the valleys of the Derwent and Ashop almost to the sources of the rivers are coloured to the fifth degree—that is, the neighbourhood of the Snake Inn is as densely populated as the neighbourhood of Nantwich. If we cross from Edale by Jacob's Ladder, we leave the fifth degree and after less than a mile of uninhabited country, plunge abruptly into the sixth degree of density. The Pass of Llanberis and the borders of Llyn Ogwen and Llyn Idwal are generally believed to be somewhat desolate regions, but according to our map they have a population of the sixth degree of density; whilst the valley of the Mersey from Stockport to Flixton is shown in the first or lowest degree. Sca Fell is rightly shown as uninhabited, but Wastdale head has a population equal to Windermere or Ambleside, or to the valley of the Ribble between Clitheroe and Preston. In the north of Anglesea is shown a patch of some twelve square miles of totally uninhabited country, containing the town of Amlwch, which according to the statistical table in the Atlas has a population of nearly 3,000, in itself sufficient to put this district in the fourth degree. Whether maps of this nature are of sufficient practical utility to compensate for the labour involved may be doubted; if not compiled with the greatest accuracy and care the result is bizarre and confusing. It is possible to write the Lord's Prayer on a threepenny bit; but it requires skill in the doing, and when done successfully is, after all, little more than a curiosity.

The Rainfall and Temperature maps, though neat in execution, fail to illustrate satisfactorily either general or detailed meteorology, being too circumscribed in area for the one purpose and too small in scale for the other. We have on each of the Plates IV. and V. fifteen little maps of a portion only of the British Isles, on a scale of something smaller than 1/6,000,000. A scale of this proportion, or even less, would be tolerable in maps giving the general relationship of the United Kingdom with the north-western portion of the European Continent, or maps of a limited area would be useful if the scale were sufficient to show details with accuracy. For one or two good maps in either class one would gladly surrender the whole thirty.

Plates VI. and VII. are devoted to a Railway map, on the scale of 1/1,013,760 (nearly that adopted for the Whole World map initiated by the International Geographical Congress). It is extended northward to embrace Scotland as far as the latitude Oban to Dundee—the absurdity of stopping a railway map short at the Border would have been too much “violence done to fact” even for a parochial patriot—and “is coloured to show the Principal Railway Systems as owned by the various Companies.” The ways are not coloured, but are shown in black, the main routes indicated by thicker lines, the areas presumably served by the various companies being

differently tinted. The result is not satisfactory. A great system like the London and North-Western seems to be no system at all, but a series of sporadic patches. Of the competing routes from London to Manchester the newest, the Great Central, appears the most continuous. In the apportioning of the areas there are some blunders of which the allotment of Wyresdale and Bleasdale right down to Longridge, to the Midland, instead of the North-Western will serve as an example. Errors of the latter description would be obvious at once if the configuration of the surface were shown, which it is not. Without it the map is but a jumble of facts devoid of educational or commercial value. There would seem to have been some dim notion in the mind of the designer that physical features have something to say to the trend of the great lines of communication, for a few well-known mountains are named; amongst them the mythical "Peak." Occasionally also figures denoting the height of the way above sea level are given, but the system upon which these levels have been selected is not apparent; they are often misleading and sometimes outrageously inaccurate. The last is a strong statement, so perhaps it will be well if we take a few excursions to verify it. We may go from London to Plymouth by the Great Western or the South-Western line and we shall not meet with any change of level which it has been thought necessary to record, but if we take the Great Eastern line from London to Yarmouth we shall find our first at Cambridge, 55 feet, then Norwich 15, and Yarmouth 14. These are some of the lower points. Without the intervening summits they afford us no information as to the character of the route. Even this easy road rises to 300 feet at Elsenham, 20 miles south of Cambridge, and there is another summit of about 150 between Ely and Norwich. Leaving Manchester for Sheffield by the Great Central we are given no level until Penistone (709) is reached; meanwhile we have passed through the Pennine backbone by one of the longest tunnels in the country. We are not given the height of the summit of the line, nor is the tunnel indicated. On the other hand, in the case of the Midland line from Manchester to Derby, we get Chapel-en-le-Frith 730, Peak Forest (summit) 980, Miller's Dale 730, Hassop 530, and finally Derby 185, which give some idea of the nature of the route. On the London and North-Western route to the North we pass no levels until we reach Oxenholme, which is stated to be 641 feet, whereas it is in reality not more than 300. The Settle and Carlisle line is interesting. At Dent Station it is stated to be 1,160 feet above sea level. At Hawes Junction, barely four miles further north, it is shown to have sunk down to 750; or the gradient for the whole distance, if the figures be accurate, must be 1 in 50, which it is not. The curious point is that there is no land of so low a level as 750 anywhere within three miles' radius of Hawes Junction.

"The general maps, when properly studied," says Dr. Mill, "explain how the configuration has worked in guiding and constraining all the phenomena of distribution"; but as there is no "configuration" indicated it is difficult to see how it has "worked," in the case of the railways at any rate. In Plates I. and III. of the general maps contours of 250, 500, 1,000, etc., are shown; the Railway map should have had at least as many.

The Depth and Height map (Plate I.) is by far the most valuable and instructive of the general maps. Its sole important defect, that it is not a complete summary of the physical aspect of the British Isles, has already been mentioned; so far as it goes it is an exquisite piece of cartography, both in design and execution—an ideal epitome of the features portrayed in detail in the 67 section maps. The river system is particularly well drawn. Each stream, with its ramifications, is clearly traced and neatly graduated throughout. A close scrutiny reveals a few minor inaccuracies and one remarkable omission. The Bray and Long Clough streams above Glossop which discharge into the Etherow at Dinting are made continuous and turned over the minor watershed by the Abbot's Chair passing into the Kinder, whilst the Kinder itself is not shown above Hayfield; the Derwent and Etherow are joined together above Woodhead; the Flintshire Alyn gets mixed up with the 1,000 contour. The omission is that of the watercourses of South Lancashire in the area between Bolton and Glazebury on the east and Hale Prescot and Parbold on the west—some 200 square miles. If this district had been treated in the same way as the rest of the map at least 40 lineal miles of stream should have been shown. The probable explanation is that the basis of the map is the Ordnance map on the scale of $\frac{1}{4}$ inch to the mile. When the latter map was published in 1892 the writer drew attention to the hideous mess which had been made of the river system in this region. The map has since been republished, vamped up generally to a resemblance of respectable cartography, but in this particular region the confusion has been dealt with by the simple method of omission.

Over the physical map Dr. Mill waxes eloquent. Says he: "It is the causal idea in geography which makes the science rich and full of human interest, and the object of this article is to indicate, in a particular case, the broad lines along which this idea works, and to give such concrete instances as may help the reader to follow them farther and apply them more completely." Just as the source of joy lies close by the fount of tears, so the dividing line between the causal and the casual idea is easily passed, and the casual idea leads often to the "howler." Let us examine some of these "concrete instances" to see how they "work." The first refers to the Southern Coast. "The narrowing of the English Channel between the Isle of Wight and Portland Isle on the north, and the peninsula of Brittany on the south, gives position to the most westerly line of cross-Channel traffic from Weymouth and Southampton to France and the Channel Islands." This is confusing Cotentin Peninsula and Cherbourg with Brittany and Brest, Cape de la Hague with Ushant, the country of the Dukes of Normandy with *Britannia Cismarina* or *Britannia Minor* of the Romans. The Beaumonts, the Bruces, the Caterets, the Nevilles, and other followers of the Conqueror, and the inhabitants of the Channel Islands, that remnant of the possessions of our Norman kings, cry Haro against confounding them with the celtic Bretons.

When we get round to the West Coast we find the "Cheshire Plain" worked for all it is worth. It is a wonderful thing this Cheshire Plain. Here are some points in connection with it. "*Northward* of the Mersey the sandy *Cheshire* and Morecambe Plains front

a low shore where a few small ports struggle against natural difficulties. . . . Manchester and Oldham, with their satellite towns, stretch almost to Liverpool over the *Cheshire Plain* on the west. . . . Two other small hill-groups (Bowland and Rossendale), not unlike miniature Lake Districts devoid of lakes, separate themselves westward from the Pennine Chain and spread out into the Morecambe and *Cheshire Plains*."

Now that we know that Chorley, Blackburn, Southport, Wigan, Bolton, etc., are on the *Cheshire Plain* some light is thrown on a mystery of long standing. It has often been asked why one of our local railway systems, the more important part of which is in Lancashire, is called the *Cheshire Lines*; but when once we grasp the causal idea the matter is plain—*Cheshire Plain*. The same causal idea, properly worked, also shows how it is that the demand for *Cheshire cheese* can be met. The *Cheshire Plain* is not limited to *Cheshire* proper, but, like the German Fatherland, it is a much greater thing—it is everywhere where the cheese is made.

It is not easy to invest so well-worn a subject as the elements of English geography with a new interest, yet Dr. Mill succeeds in doing so; for, in describing how the rivers run down from the higher regions to the sea, he mentions some facts which seem to have escaped the observation of earlier writers. Referring to the *Berwyns*, he says, "The steep north-western face of the mountain group drains through the *Dee* to the *Mersey*." Geographical education seems to be somewhat backward in the *Wirral peninsula*, for in that district the belief still strongly holds that the *Dee* has an estuary of its own and strange to say, this view is supported by the maps in the *Survey Atlas*. Also, he observes, "It is worthy of remark that, with the solitary exception of the *Humber*, no streams rising in the Western Division cross the Eastern Division on their way to the sea." The people of the *Potteries* are probably ignorant to this day that they are living in close proximity to the sources of the *Humber*. Following this idea further, and applying it more completely, we get a nice little series of "breakfast-table problems": What are the sources of the *Wash*, the *Solway Firth*, and the *Bristol Channel*?

Some of the concrete ideas in this rather remarkable essay convey but partial truths, and consequently may give rise to erroneous notions in the minds of the young. As instances, the following may be cited: "It must be noticed that a stiff clay subsoil, as in the *Fenland*, may retard the drainage of low flat land to such a degree as to counteract the effects of a low rainfall and produce a humid climate nourishing a marshy vegetation." This may easily give the impression that the imporous subsoil and not the low level is the principal cause of marshy conditions. If the land is at so low a level that the water cannot flow off, it matters little what the nature of the subsoil may be. On the low margin of the "*Cheshire Plain*," in Lancashire, we have marshy conditions, with sand and peat overlying red sandstone rock.

That "the coal mines determine the sites of all the important manufacturing towns" is equally questionable, for the sites of many manufacturing towns, especially those of East Lancashire and West Yorkshire, were originally determined rather by the copious streams from the *Pennines* than by the proximity of coalfields, and it was

the discovery of the hæmatite which converted the lonely districts of Furness and Cleveland into hives of industry. If it be necessary that the kind of geographical lobsouse which we have been sampling should be provided, which is more than doubtful, it should at least be accurately compounded.

Some years ago Dr. Mill advocated a scheme for the establishment of an official Department of Geographers, which should be entrusted with the task of preparing a description of the area in each sheet of the Ordnance Survey. The complete work was to run to some thousands of octavo pages, and the geographers were to be comfortably provided for during the years of excogitation. If the outcome were of the nature of these causal ideas, the bare thought of the scheme makes the mind reel. Good maps require no elaborate adventitious aid to their interpretation. An explanation of the conventional signs used, memoranda on roads, with a modicum of statistical and other information to supplement the map, is all that should be necessary; something of the nature of the report attached to a military sketch, and, like a good report concise definite and exact. Opinions theories and causal ideas may be left for the text-book or the lecture theatre.*

The general maps of an atlas, those which deal with separate aspects of geography, require much skill in design, for they must be sufficiently complete to illustrate properly the particular subject and to render the identification of any locality easy when reference is made to them for special information regarding corresponding districts on the larger scale maps, and yet they should not be overcrowded with names. A well-drawn river system with some indication of the ground forms is the best guide to locality. The success in this respect of Plate I. (the Heights and Depths map) has been mentioned. The Geological (Plate II.) is the same map as regards outline and river system; but in the latter map, just where they were most necessary, the contour lines have for some unaccountable reason been omitted. As Dr. Mill says, if we wish to understand the physical character of a district the Geological map must be superimposed on that of the configuration. Of course, Dr. Mill does not mean actually, but figuratively or mentally superimposed. This is impossible to all but the trained expert unless the guiding lines of the configuration are shown on the Geological map itself, for the lines of geological divisions run in every direction athwart physical features and administrative boundaries. Even so great an expert as Dr. Mill himself may go wrong. Turning again to his dissertation, we shall find he says that the "Southern Pennines rise to 2,088 feet in the wild limestone plateau of Kinderscout in the High Peak District." Now, there is neither wild or any other kind of limestone on the Kinder plateau—the *quondam* "Peak" of the Ordnance Survey—it is a grouse moor. Grouse and grit are associated in the district because of the heather, which does not take kindly to the limestone. Two things probably have contributed to mislead Dr. Mill. On the map the name Kinder Scout is some miles out of its proper position, and the locality to which it apparently refers is coloured

* The 4-inch to the mile maps of this atlas, mounted and folded with a companion of the kind indicated which might take the form of a leaflet inside the cover, would no doubt be found very useful.

as limestone. Considering that Kinder Scout gives its name to one of the most distinctive of the millstone grit series the blunder is a truly remarkable one to find place on a geological map.

Of all formations the mountain limestone is possibly that which is most generally recognised, even by those who make no pretensions to geological knowledge. In the words of Sir Archibald Geikie: "It forms conspicuous topographical features in some parts of the country where it is well developed; its strata form a striking type of scenery, projecting to the surface in sheets and knobs of bare pale stone, and winding in white escarpments along the green slopes of the valleys." Yet in a map intended for popular use this strikingly peculiar rock is included with, and coloured in the same way as, the shales grits and sandstones of the Yoredale series. Formerly in general maps the Yoredale series has been included with the millstone grit, with which in its physical structure and scenic effects it is more akin.* The result of the new arrangement is to transfer to the limestone area hundreds of square miles of country possessing none of the characteristic features of that formation. Even if the new classification be more scientifically accurate, the older one is more natural obvious practical and convenient. In the descriptive text, Sir. A. Geikie dwells upon the distinction between "sedimentary rocks composed of mechanical detritus solidified into such rocks as sandstone grits conglomerates or shales" and those composed of "the remains of once-living calcareous organisms" and the different forms of surface produced by them. Nowhere perhaps is the difference more typically displayed than in the scenery of the Hundred of the High Peak north and south of a line drawn roughly from Chapel-en-le-Frith to Castleton. In a journey from Buxton to Sheffield by the Midland line we pass through all three—the limestone the Yoredale rocks and the millstone grit—the difference between the first and the other two is apparent to the meanest capacity. Says Sir Archibald: "The traveller or tourist who journeys with a geological map in his hand can mark how each distinct change in topography arises from a corresponding alteration in the character of the geology. Even from a rapid railway journey much may be learnt regarding the dependence of topography upon geological structure." But for any journey across the Pennines the traveller or tourist will have to furnish himself with some other geological map than that in the Survey Atlas.

It has been mentioned that the principal part of the Atlas is made up of the 67 sheets of a map of England and Wales, on the scale of half an inch to the mile, called a "topographical" survey. It is interesting in this connection to note the application of the words "topographical" and "topography" to ground forms in the passages just quoted from Sir A. Geikie's article on "The Geological Features of England and Wales." We are progressing. About a dozen years ago, the writer, in giving evidence before the Committee on the Ordnance Survey, said that a map to be truly topographical must indicate the ground forms. On that occasion Sir A. Geikie said it was a definition of a topographical map he had never heard before.†

* *E.G.* Sir A. C. Ramsay's well known map and Dr. James Geikie's geological map of the British Isles in Chambers' *Encyclopædia*.

† Ordnance Survey Committee, 1892-3, Minutes of Evidence. Question 752.

In this country during the last half of the nineteenth century the art of topography was, thanks to the Ordnance Survey, almost entirely neglected. The prevailing notion was that topography had something to do with the old-fashioned style of county histories, those huge and generally expensive collections of ill-digested facts in which true topography is usually conspicuously absent.

Topography, as defined by Littré, is the art of representing on paper the configuration of a portion of the terrain with all the objects which are upon its surface. This is the sense in which the word has been used by most scientific geographers, especially in France. In the words of M. Drapeyron: "It is the geography of three dimensions, the science of the relief of the land." Various ways of showing this relief have been adopted by cartographers, but practically there are but two principles—one the principle of shading, or the artistic method; the other that of contours, or the mathematical method—the other methods are combinations. To render the forms of ground by contours alone requires that the vertical interval between them be small. There is but one county in England—namely, Lancashire—where the contours are nearly sufficient for the purpose. That is because Lancashire was surveyed at the time of the zenith of British cartography, when the Ordnance Survey was still conducted on the lines and in the spirit which the genius of Colby had prescribed. Yorkshire was almost as well done, but for most of the other counties the preposterous interval of 100 feet was adopted and any kind of contouring above the 1,000 feet level abandoned. The change was due to the stupidity of a Committee of 1852. The Committee of 1892-3, although unable to appreciate the importance of the contour question, did, under pressure, ultimately agree to the feeble recommendation of contours at 250 feet intervals after the 1,000. Thus it is that over many thousands of square miles not even a complete skeleton of the ground forms is provided. As it is upon these Ordnance contours, with perhaps one or two exceptions, that the Survey Atlas map depends, it is not, strictly speaking, a true topographical map. Although the area of land between any two contours is brought out by differently tinting the layers, the layer system can never give the moulding. It may serve very well, as we have seen, for a general map; there it is in its proper place. Something more than this is required in good cartography on such a scale as $\frac{1}{2}$ inch to the mile ($\frac{1}{12,500}$).

Whilst Messrs. Bartholomew's map has been in the making, the Ordnance Survey has been at work on a map of England and Wales on the same scale and with the same contours. In design and execution it is inferior to the Edinburgh map, but has some occasional smudges on its surface which from their position in relation to the contours presumably are intended to help to indicate the ground forms. One cannot help wondering whether Messrs. Bartholomew were placed under any limitations as to the extent to which they might utilize the Ordnance Survey, for there is little doubt that, given a free hand, they could have produced a complete topographical map which would have shamed the Ordnance Survey effort, or rather rendered it unnecessary. The artist-draughtsman is a great deal more in evidence in the private firm's map than in the official one. The difficulties with which private cartography has to deal in this country were, however,

pointed out at the commencement of this article; it is only necessary to ask the reader to keep these in mind in connection with the observations which follow on some errors in the representation of detail on the map.

The vagaries of the 2,250 contour about Helvellyn are worthy of notice. The contour is absolutely necessary even to a rough conception of the conformation of the eastern side of that mountain. It is not to be found on the six-inch or one-inch Ordnance maps in the writer's possession, so unless it be a recent achievement it represents an effort of private enterprise to make good the omission of the Government Survey. This line after coming by the shoulder of Catchedicam (Catstye Cam of the Ordnance Survey), runs around the foot of Swirral Edge, under the brow of Helvellyn and Striding Edge, to Bleabery Crag. Now, Red Tarn lies within this loop, and Red Tarn is 2,356 feet above sea level. As it is shown to be surrounded by a belt of land at least 156 feet lower in level its waters must be retained in place by some occult force.

In Plates 71 and 72 the most striking feature in the landscape to the north of Portsmouth, namely, Portsdown Hill, is practically omitted. The contours and colouring merely indicate that there is a block of land above the 100 feet level, and that is all. As a matter of fact, Portsdown Hill rises in one part at least to 400 feet. The explanation of the absence of this feature is simple. Some five-and-twenty years ago the War Office, being attacked with a fit of nerves regarding the accurate mapping of the ground in the neighbourhood of fortresses and military stations, the maps of all the most important having been completed and published and in the possession of any foreign power wishing to have them, proceeded to lock the stable door. The Ordnance Survey was directed to remove the contours from the six-inch and one-inch maps, and there was a temporary famine in sandpaper caused by the demand for that useful article for the purpose of defacing the maps in stock. It was a curious episode, but the idea that good maps should not be made lest they be used by the enemy is still to be met with, and sometimes finds expression in most unexpected quarters. Really it is a belated argument against the policy of making national topographical maps at all; a question which was determined more than 100 years ago. In the new half-inch Ordnance map the contours on Portsdown Hill are inserted. Let us hope that timid counsels will not again disturb the sandpaper market.

The road problem is ever a difficult one for the cartographer; particularly so in our country, where there is no administrative classification of ways, and where the public as a whole has little knowledge of topography and less of its cartographic representation. The coming of the cyclist, and later of the motorist, has sometimes caused extravagant and unreasonable demands upon the map maker's skill. To not a few of the first and to most of the latter the road is everything, the rest of the country nothing. They do not always realise that mountain and valley, swell and swale of ground well rendered in a good topographical map is essential to the interpretation of detail, nor do they understand the notation of the cartographer. On the old one-inch Ordnance map no classification was attempted, but the drawing having been done by artists, directly from the Survey MSS., conveyed more information

than the new purely-mechanical delineation and classification in four, or with footpaths, five, groups. In Messrs. Bartholomew's Atlas the classes are reduced to three. The result is by no means satisfactory; it is the one serious fault in the work. How serious it is a glance at Plate 18, part of the Lake District, will show. On this sheet alone there are, at a rough estimate, some twenty-five miles of roads which in the season are daily traversed by all sorts of vehicular traffic, which are nevertheless here shown as "footpaths or bridle-paths." For example, the well-known "Struggle" from Ambleside to the Kirkstone Pass and the road on the west shore of Windermere from the Ferry Hotel to High Wray are shown in exactly the same manner as the track up Scandale Beck which passes over by the back of Red Screes to Brothers Water, or as the path over the Stake Pass. In "the round of the Langdales" the link between the Great and Little Dales by Blea Tarn is missing, and in the Tilberthwaite round that between Yewdale and Little Langdale. There is no possibility of driving over the Wrynose or Hard Knott Passes, and in Duddon Valley we shall not find a road until we get down to within a mile of Ulpha. If we turn to the general map in "Baddeley's Guide" (which, by the way, is by Messrs. Bartholomew) we shall find all the above routes marked as "good carriage roads." It may be merely a coincidence, but it is worthy of note that almost exactly the same blunders are to be found in the $\frac{1}{4}$ -inch to the mile Ordnance map.

In the case of footpaths which are footpaths and nothing more, their omission in a map of $\frac{1}{4}$ -inch scale may, in crowded districts, be excused. In hilly districts or open country there is no reason why if one is shown, all should not be shown. This however has not been done either in the Lake District Derbyshire or North Wales. Of paths of equal importance, one is inserted the other not. In the Peak District the old bridle-way by Jacob's Ladder, although shown crossing the ridge, never arrives at Edale. The ancient pack-horse track from Hayfield to Castleton by Roych Clough is not shown at all; neither is the Roman road from Hope to the Woodlands, and there is no way of any kind through the Winnats.

In the drawing of roads and railways sufficient care has not always been taken to distinguish between over and under bridges and level crossings. There is perhaps no kind of error more disconcerting to the beginner in topography.

The Survey Atlas of England and Wales has been dealt with at length in this review for the reason that it affords an opportunity of setting forth again what it is that stands in the way of topographical study in this country. The main obstacle is the lack of the indispensable material. In topographical education the map is the text-book, and in the provision of good maps we are still a long way below the standard to which some Continental nations have attained. A good map cannot be made by simple reduction from one of a large scale, or by applying the hill forms afterwards to a map which has been "composed" without reference to ground forms. It must be specially designed for the scale on which it is to appear, and the mode of representing the third dimension must be taken into consideration at the outset as one of the essential elements. The Ordnance Survey, in not observing these necessary conditions in the production

of its maps, does not make full and proper use of the materials at its command. In recent years it has been producing maps in colours on the 1 inch, $\frac{1}{2}$ inch, and $\frac{1}{4}$ inch to the mile scales, no one of which can be considered as first-class. It would be well if the Government could be induced to give the full use of the materials in its possession to firms of the standing of Messrs. Bartholomew, with instructions to prepare a few essay sheets of a topographical map, say on the 1/100,000 scale. The experiment need not be costly. It would almost certainly lead to the evolution of the map so long wanted which shall give us a faithful and artistic representation of our land, and restore the faded reputation of British cartography.

AUSTRALIAN EXPLORATION.

[Communicated by Mr. T. S. REED, Secretary of the South Australian Branch of the Royal Geographical Society of Australasia.]

UNDER the auspices of the Royal Geographical Society, Captain Barclay, one of the members of the Barclay-Macpherson expedition, which recently returned from an exploring trip north of Lake Eyre, delivered a lecture at the University. The chair was occupied by Sir Langdon Bonython, the president of the society. In introducing the lecturer he stated that he felt that Captain Barclay and the other members of the expedition had placed the people of Australia under obligations by going out at their own expense to explore an unknown portion of the continent. It was an exploration attended with many privations and much peril, and if the results were not as satisfactory as one could have wished that was their misfortune, not their fault. They would have preferred to explore fertile country, containing rivers and beautiful scenery, rather than to cross territory which consisted almost entirely of sand ridges. As it was they had added their names to the long and illustrious roll of Australian explorers. When the expedition went out there was just a hope that they might find some traces of the explorer Leichhardt. It was scarcely necessary to say that they had discovered none. If Leichhardt and his party perished in the country of sand and desolation traversed by the Barclay-Macpherson expedition there would certainly at this time be nothing left to tell the story. He congratulated the explorers on the contribution which they had made to science. They had done this in various ways. He would only mention one—the more exact knowledge which they had been the means of furnishing to the map-makers as to the interior of Australia.

Captain Barclay said the objects of the expedition had been (1) to explore the country and endeavour to find a stock route from Mandoora to Queensland, and in this they were

only partly successful; (2) to make a survey of a square mile of country in the sandhills for scientific purposes, which was done; and (3) to search for possible traces of the explorer Leichhardt and his companions, in which object, however, they had not the slightest success. The members of the expedition started out at their own expense, but the Government lent the use of six camels. These they loaded up at Oodnadatta, each animal carrying a load of 6 cwt. With the aid of a map of the country thrown on a screen by electric light, the lecturer traced the course taken by the expedition, and a number of pictures of the scenery taken en route were also shown. These proved of the utmost interest, many of them being, of course, the first views ever taken of that portion of the continent. Among them are photographs of the huge sandhills, which are traversed by valleys through which the explorers were compelled to travel. The lecturer explained that there are endless tracts of sandhill country, hopeless, lifeless desert, the only vegetation being spinifex. It was a dreary journey, with water scarce and scanty. For eight days at a stretch nothing but sandhills were seen on either side. Snapshots were shown of members of the party, mounted on their camels, digging for water, loading the camels, and so on. A splendid picture was given of the Anacoola bore, which struck water at a depth of nearly a quarter of a mile, and has a discharge of 700,000 gallons per day. This water has a temperature of 135 degrees. As illustrating the thirsty nature of the soil, or rather, sand, in spite of this magnificent flow, there is only a small pond of water in the vicinity: the rest is soaked up by the greedy earth. The captain noted as a singular fact that bullrushes spring up round all these artesian bores, and where the seed comes from is a mystery, as there is no other vegetation but the eternal spinifex. First-class views were shown of the Bonython range of mountains (so named after the president of the society), and of the Todd River. There were also attractive snapshots of the aborigines, including a couple of black girls in male attire, who, the lecturer assured his audience, made capital boundary-riders; native women and boys in "the altogether," and striking pictures of blacks in their corroboree paint and decorations. In some portions of the country in the neighbourhood of the Todd River rabbits were very numerous, having infested the country during the last six years. These animals provided ample food for the natives, and the explorers were very glad of their presence to replenish their larder. The party in its eastward journey struck across to the Hale River, where a depot of provisions was left. They travelled further eastward, but were compelled to retrace their steps for want of water. On the return journey to the vicinity of the Anacoola bore they had to abandon all superfluous luggage and travel with the bare necessities of life, and when they reached water they had only half a gallon of the precious fluid left. The temperature was 114 deg. in the shade during that terrible journey back, and the thermometer never got below 90 deg. day or night.—*Adelaide Advertiser*.

ELI SOWERBUTTS.*

It is twenty-six years since, at a meeting of the Manchester Chamber of Commerce, the late Cardinal Vaughan, then Bishop of Salford, pointed out the special importance of the study of geography to all who were engaged in mercantile enterprise, and called the attention of his audience to the existence of numerous Geographical Societies on the Continent, and the attention given to scientific and commercial geography by this country's competitors, while we in the United Kingdom only could claim one society, the Royal Geographical, as working in the promotion of this important science. A few gentlemen, impressed by this address, made an attempt to found a society in Manchester such as the Bishop had described as flourishing in many less influential European towns. Their efforts proved a failure. But the interest aroused in this district by the discoveries which were made in Central Africa, and the growth of commercial intercourse and enterprise with the newly-opened fertile lands, encouraged some of the promoters of the unsuccessful plan in the year 1884 to make a new effort, and this time their endeavour was crowned with success, and on the 15th of October of that year, at a meeting held in the Mayor's Parlour, a Provisional Committee was established, and the Manchester Geographical Society came into existence. The moving spirit to which this success was owing was Eli Sowerbutts, whose zeal in the study of geography and perseverance in the promotion of its development nothing could crush; and now, when the Society looks back on twenty-one years of usefulness it is fitting that the Journal which owes to him its being, and under his guidance has done such valuable work, should remind its readers of the debt they owe to him and his self-denying toil. Of course Mr. Sowerbutts was not the only one to whom the foundation of the Society had to be ascribed. Mr. John Slagg, Mr. Benjamin Armitage, Mr. J. F. Hutton, Cardinal Vaughan, Mr. Jacob Bright, Professor Boyd Dawkins, and others gave their valuable help, and earned the gratitude of the many who have enjoyed the benefits which the Society has conferred upon the City of Manchester. But while his coadjutors gave valuable time and judicious counsel, as well as money, to the cause in which they were deeply interested, Eli Sowerbutts gave himself and all that he possessed to the work for the remainder of his life. It was no common service that will ever be connected with his name, nor will it ever be possible to measure its value. He was a true representative of genuine Lancashire character. Careless about outward appearance, but thorough in everything he undertook, and unflagging in his work; he shunned no labour, and was discouraged by no difficulty. Emerson must have had men like him in mind when he defined an obstacle as something to be overcome. Rough and rugged in manner, making light of every personal trouble, he had the tenderest sympathy with the joys and sorrows of his many friends, and the broadest fellow feeling for the welfare of all mankind. Those who were privileged to penetrate below the unceremonious manner he took pleasure in assuming discovered a genial nature, which responded to every appeal and made them lasting and loving friends. No one who had gained his confidence could find a more winning companion, rich in humour, quick

* See Frontispiece, which is reproduced by permission of Messrs. Sherratt and Hughes.

in apprehension, overflowing in information on his special branches of knowledge, and as ready to listen, when one had something to say worth listening to, as he always was to give of the rich store of knowledge he had accumulated. The writer of these lines has often wondered how he had been able to attain such accurate and at the same time extensive information as he possessed, and has looked upon him as a telling exemplification of the educational influence of a true study of geography. He seemed to be at home in every part of the earth, knowing not only its physical characteristics, but acquainted with its peoples, their manners, customs, and their story. It was interesting to be with him at gatherings of folk engaged in the study of his favourite science, and see how his unassuming work was recognised and appreciated by men of the highest attainment among its leaders, and how explorers and discoverers seemed to enjoy meeting with one who knew how to value aright the work they had accomplished, and the toil they had to endure in pursuing their arduous enterprises.

To achieve what he has done in the promotion of the study of geography by the establishment of the Manchester Geographical Society is no small matter, but his influence was not confined to Manchester, but was felt in very many other places. The Journal, of which he was the Editor, is a welcome visitor to folks interested in geography all the world over, and men engaged in the study of geography who were enlisted in that study by his inspiring enthusiasm can be found in very many distant lands in the far East, in Africa, and Australia, gratefully cherishing the memory of their old friend and carrying on his work. Now that the new offices and rooms of the Manchester Geographical Society are in commemoration of its 21st anniversary to be opened to its members, it is well to recall the person of the real founder of the Society, and record the enduring respect and affection in which Eli Sowerbutts' memory is cherished. Would that he had lived to see the promise of still growing usefulness, which is opening new vistas of service to the Society which he called into being and which his enthusiasm inspired with lasting life.



THE LATE SECRETARY (ELI SOWERBUTTS, F.R.G.S.)
In his Office in the Old Building of the Society (1894—1904).

PROCEEDINGS OF THE SOCIETY.

JULY 1ST TO DECEMBER 31ST, 1904.

The 679th Meeting of the Society was held at Marple on Saturday, July 9th, 1904.

A large number of members and friends were met by Mr. Joel Wainwright, J.P., and proceeded under his guidance, and by the permission of Miss Hudson, through Brabyns Park and up the hill to Finchwood.

After tea Mr. Wainwright gave an interesting account of the metric system, and explained the reasons which had caused him to come to the conclusion that it was not suitable for adoption in England.

The Rev. S. A. Steinthal moved, and Mr. J. Howard Reed seconded, a cordial vote of thanks to Mr. Wainwright for his guidance and hospitality, and it was passed unanimously.

The 680th Meeting of the Society was held at Dunham Village on Saturday, July 23rd, 1904.

A party of the members strolled through Altrincham and Bowdon to Dunham Village, where they had tea.

A Conference was then held of the Victorians and the representatives of affiliated societies who were present, at which the arrangements for the Victorian Lectures for the next session were discussed, after which the party walked back through the two parks to Altrincham Station.

The 681st Ordinary Meeting of the Society was held in the Coal Exchange, on Wednesday, October 12th, 1904, at 7-30 p.m. In the chair, the Rev. S. A. Steinthal, F.R.G.S.

The Minutes of Meetings held April 19th, May 3rd, June 11th and 25th, July 9th and 23rd were adopted.

The election of the following new members was announced:—

Ordinary: The Rev. P. A. McDermott, C.S.Sp., Mr. John F. Haworth, J.P., the Right Rev. the Lord Bishop of Manchester, Mr. J. L. Paton, M.A., and Mr. C. F. Fooks.

Dr. J. Murray Moore, F.R.G.S., addressed the members on his recent travels in Austria and Hungary. (See page 113.) The address was illustrated with limelight views specially prepared for the occasion, including four panoramic views.

Mr. E. W. Mellor, J.P., F.R.G.S., moved, Mr. F. Zimmern seconded, and it was resolved that the thanks of the meeting be given to Dr. Moore for his interesting address. Dr. Moore responded.

The 682nd Ordinary Meeting of the Society was held at Owens College (by permission of the Council), on Wednesday, October 19th, 1904, at 7-30 p.m. In the chair, the Rev. S. A. Steinthal, F.R.G.S.

The Minutes of the Meeting held on October 12th were approved.

The Chairman mentioned the deaths of Messrs. T. Eggington and T. R. Langtry, and a resolution of sympathy with their families was passed.

The Rev. A. B. Fisher, F.R.G.S., addressed the Society on "Western Uganda." (See page 49.) The address was illustrated with a fine set of lantern slides.

The Vice-Chancellor moved, Mr. H. Nuttall, J.P., F.R.G.S., seconded, and it was resolved, that the best thanks of the Society be given to the lecturer for his interesting address. Mr. Fisher responded.

Mr. J. Howard Reed moved, Mr. Zimmermann seconded, a resolution of thanks to the Council and to Dr. Hopkinson for their kindness in granting the use of the room, and it was carried unanimously.

The 683rd Ordinary Meeting of the Society was held in the Coal Exchange, on Tuesday, November 8th, 1904, at 7-30 p.m. In the chair, the Rev. S. A. Steinthal, F.R.G.S.

The Minutes of the Meeting held on Wednesday, October 19th, 1904, were adopted.

Apologies for absence were read from Messrs. E. W. Mellor, J.P., and J. Howard Reed.

Miss Ethel Heywood addressed the members on "A Journey in Sicily." (See page 116.) The address was illustrated by lantern slides from photographs taken by herself.

A hearty vote of thanks to Miss Heywood for her very interesting address was carried unanimously, on the proposition of Mr. John R. Smith, seconded by Mr. D. A. Little. Miss Heywood suitably responded.

The 684th Ordinary Meeting of the Society was held in the Accountants' Hall, on Tuesday, November 22nd, 1904, at 7-30 p.m. In the chair, Mr. Harry Nuttall, J.P., F.R.G.S.

The Minutes of the Meeting held on Tuesday, November 8th, 1904, were adopted.

Apologies for absence were read from the Rev. S. A. Steinthal, F.R.G.S., and Messrs. N. Kolp and J. Howard Reed.

Mr. Councillor W. Butterworth gave an address on his experiences during "A Visit to Portugal." (See page 145.) The address was illustrated by lantern slides.

A hearty vote of thanks to Councillor Butterworth for the interesting account of his visit was moved by Mr. C. E. Reade, seconded by Councillor J. Snaddon, and carried unanimously. Councillor Butterworth responded.

A Special Meeting was held in the Free Trade Hall, on Wednesday, November 30th, 1904. The Right Hon. the Lord Mayor took the chair at 8 p.m. A large number of our members availed themselves of the facilities provided by the Directors of the Athenæum to hear Captain Scott give his address, entitled "Farthest South," being a record of his experiences during his journey in the Antarctic Regions.

Mr. E. W. Mellor, J.P., kindly provided his powerful electric lantern to project Captain Scott's views on the screen.

The 685th Ordinary Meeting of the Society was held in the Coal Exchange, on Tuesday, December 6th, 1904, at 7-30 p.m. The Rev. S. A. Steinthal, F.R.G.S., in the chair.

The Minutes of the Meeting held on Tuesday, November 22nd, 1904, were adopted.

Mr. Abel Heywood had a splendid set of Japanese coloured lantern slides exhibited, fully describing the various points of interest of the pictures shown.

On the proposition of Mr. J. R. Smith a hearty vote of thanks was accorded to Mr. Heywood for his kind services.

The 686th Ordinary Meeting of the Society was held at the Memorial Hall, on Tuesday, December 13th, 1904. Mr. H. C. Martin, F.R.G.S., took the chair at 7-30 p.m.

The Minutes of the Meeting held on December 6th were adopted.

The election of the following new members was announced:—

Corresponding: Rev. A. B. Fisher, F.R.G.S.

Associate: Miss A. Collinge.

Apologies for absence from the Rev. S. A. Steinthal, F.R.G.S. and Messrs. Harry Nuttall, J.P., F.R.G.S., and J. Howard Reed were announced.

The following letters from Mr. C. Davison, of Birmingham, were read:—

16, Manor Road, Birmingham,

December 6th, 1904.

DEAR SIR,—I venture to ask if it would be conveniently possible to allow the enclosed letter to be read at a meeting of the Manchester Geographical Society? It is most difficult to obtain the materials necessary for the compilation of a history of British earthquakes, and especially of those which occurred some years ago, and I am therefore appealing to the members of our principal local scientific societies for help which, individually, may perhaps be given without much trouble or inconvenience, but which collectively will no doubt be of very considerable value and importance. If the necessary time could be spared at one of your meetings I should be grateful if my request might be brought before the notice of your members.—Yours faithfully,

(Signed) CHARLES DAVISON.

The Secretary of the Manchester Geographical Society.

A HISTORY OF BRITISH EARTHQUAKES.

16, Manor Road, Birmingham,

December 6th, 1904.

DEAR SIR,—During the last 16 years I have been engaged in studying the earthquakes of this country, the results of my work being contained in papers published in the Quarterly Journal of the Geological Society and the Geological Magazine, and in my report on the "Hereford Earthquake of December 17th, 1896." I propose now to carry the work backwards, so as to prepare as complete a history of British earthquakes as may be possible at the present day. To do this at all satisfactorily is, of course, beyond the powers of one man. It requires access to the files of local newspapers. Records of past shocks may be preserved in private journals.

and not a few are to be found in the pages of county and parish histories or local magazines. These sources are for the most part inaccessible to all but their owners, and it is therefore only by the kindly aid of others that the necessary materials can be obtained. If any member of the Manchester Geographical Society should be able and willing to contribute records, either from the sources mentioned above or from their own recollection, of earthquakes felt in any part of the country, but especially in Lancashire, such help would, I need hardly say, be of the very greatest service in my work.

As a seismic district Lancashire is one of the most important in the British Isles, no English county having been disturbed so often, and only three counties in Scotland more frequently, during the last hundred years. The dates on which recorded earthquakes occurred since the beginning of the 19th century are as follows: June 1st, 1801; March 17th, 1816; November 9th, 1817; October 31st, 1818; March 23rd, 1827; June 11th, 1833; August 20th, 1835; June 11th and 12th, 1839; June 21st, 1842; March 10th and 17th, 1843; December 3rd, 1845; November 9th, 1852; October 6th, 1863; September 26th, 1864; January 15th, 27th, and 28th, February 15th, 1865; February 22nd and 23rd, 1867; October 30th and November 22nd, 1868; March 14th, 15th (two shocks), 25th, and 28th, 1869; February 23rd, March 17th, 18th, and 22nd, 1871; July 16th, 1873; November 14th, 1884; June 30th, 1885; January 5th, 1886; December 1st, 1887; February 10th, 1889; November 2nd, 1893; December 17th, 1896; July 9th, 1901 (two shocks); March 24th and June 19th, 1903; and July 3rd, 1904. Thus, altogether, 46 earthquakes have been felt in Lancashire during little more than a century. Some of them belong to centres situated in other counties. The earthquakes of 1863, 1868 (October 30th), and 1896 originated near Hereford; that of 1852 beneath the Irish Sea; the earthquake of 1893 in Pembrokeshire, and that of 1903 (June 19th) in Carnarvonshire; while the earthquakes of 1903 (March 24th) and 1904 were due to almost simultaneous impulses in two Derbyshire foci—one near Ashbourne, the other near Wirksworth. There remain, however, a large number which originated in centres situated within or close to the limits of the county, among the most interesting being those of March 17th, 1843, March 15th, 1869, and March 17th, 1871.

It is possible that some of the above disturbances may not have been true earthquakes. In all mining districts shocks occur from time to time, like those felt in the district round Pendleton on February 27th, 1899, and April 7th, 1900, which are in all probability connected more or less closely with mining operations.

Of the shocks which have taken place since 1889 I have, I think, sufficient descriptions, but notes about any of the others would be most useful for the purpose which I have in view. Especially should I be glad to receive accounts of those which occurred on March 17th, 1843; November 9th, 1852; October 6th, 1863; October 30th, 1868; March 15th, 1869; March 17th, 1871; and February 10th, 1889. Notices of the local shocks in mining districts would be of much interest, as also would be records of the effects of the great Lisbon earthquake of 1755, if any such are known to have been observed.

The points on which I desire most to obtain information are indicated in the appended series of questions. I may add that I shall be glad to

send printed copies of these questions to any members of the Geographical Society or others who may be able and willing to give, to however slight an extent, that valuable assistance suggested in this letter.—Yours faithfully,

CHARLES DAVISON, Sc.D., F.G.S.

The Secretary of the Manchester Geographical Society

QUESTIONS.

1. Place of observation.
2. Condition of observer when the earthquake began—((a) indoors or outside, (b) awake or asleep.
3. Time of occurrence.
4. (a) Nature of the shock. (b) Did it consist of two distinct parts, separated by a brief interval of rest and quiet? (c) If so, which part was the stronger, and how long was the interval between them?
5. Was the shock strong enough (a) to make doors, windows, etc., rattle? (b) to cause the observer's seat to be perceptibly raised or moved? (c) to make pictures, chandeliers, etc., swing? (d) to overthrow ornaments, vases, etc.? (e) to throw down chimneys or crack the walls of buildings?
6. Was any unusual sound heard at the time, and what did it resemble?
7. Were any slight shocks felt before or after the principal earthquake? If so, at what times, etc.

Mr. H. Yule Oldham, M.A., F.R.G.S., gave a very interesting account of the meeting of the British Association at Cambridge. He exhibited and presented to the Society the various publications issued in connection with the meeting.

Mr. E. W. Dann, B.A., gave an address on "What is Geography? The Teacher's Standpoint." (See page 130.) The address was illustrated with lantern slides.

The thanks of the meeting to Messrs. Oldham and Dann for their very interesting addresses were moved by Mr. Matthew Ingram, and seconded by Mr. C. E. Reade, and unanimously adopted.

The 687th Ordinary Meeting of the Society was held in the Accountants' Hall, on Tuesday, December 20th, 1904, at 7-30 p.m. Mr. J. Howard Reed in the chair.

The Minutes of the Meeting held on Tuesday, December 13th, were read and approved.

The three delegates of the Society to the Eighth International Geographical Congress, held in the United States, gave their reports, each from a different point of view. The Rev. F. A. Rees described the social features of the Congress, Mr. H. C. Martin, F.R.G.S., gave full details of the proceedings at the sessions of the Congress, and Mr. W. Telford Gunson, C.E., spoke of his general impressions of the Congress and of the country.

Mr. Harris moved, Mr. Stewart seconded, the Chairman and Mr. C. E. Reade supported, a hearty vote of thanks to the three delegates for the very interesting accounts they had given of their experiences at the Congress.

LIST OF MAPS, BOOKS, JOURNALS, ADDI- TIONS TO THE MUSEUM, &c.,

ACQUIRED BY THE SOCIETY FROM JANUARY 1st TO DECEMBER
31st, 1904.

MAPS.

GENERAL.

Maps. Reprints of Maps published in the Geographical Journal, 1904. * The Royal Geographical Society.

EUROPE.

Ordnance Survey Map of Lancashire. Sheet XCVI. S.W. and S.E. sections. Scale, six miles to an inch.
Carta della Strade Ferrate Italiano, 1904. Roma: Istituto Cartografico Italiano. * The Publishers.
Pianto Speciale di Roma. Scala, 1/20,000. Prima Edizione, 1904. Roma: Istituto Cartografico Italiano. * The Publishers.

ASIA.

Sketch Map of South Manchuria. Compiled in the Intelligence Branch, Quarter-Master General's Department in India, from a Map of South Manchuria, dated 1902, by Colonel G. F. Browne, Military Attache in China; French and Russian Standard Sheets, and Russian Map of Manchuria, 1901. Scale, 20 miles to an inch. No. 3030—I., 1904. * Director of Military Operations.
Map of Korea. Transliterated from a Russian Map, dated 1900, in the Intelligence Branch, Quarter-Master General's Department, by Major G. H. G. Mockler, 30th Burma Infantry. Scale, 20 miles to an inch. No. 3009, I., 1930. * Director of Military Operations.
Carta della Cina Orientale, Corea, Giappone ed Estremo Oriente Russo. Scala, 1/2,800,000. Seconda Edizione. Roma: Istituto Cartografico Italiano. * The Publishers.

AFRICA.

Map of Africa. Scale, 1/1,000,000. Sheet 3, N.W. Morocco; Sheet 4, N.E. Morocco; Sheet 10, S.W. Morocco; Sheet 11, S.E. Morocco; Sheet 82, Fernando Po; Sheet 83, Ngoko. I.D., W.O. No. 1539. * Director of Military Operations.
Map of Africa. Scale 1/250,000. Northern Nigeria. Sheets 61 C, 61 D, 61 G, 61 H, 61 K, 61 L, 61 O, 61 P, 62 A, 62 B, 62 C, 62 E, 62 F, 62 G, 62 H, 62 I, 62 J, 62 K, 62 L, 62 M, 62 N, 62 O, 62 P. I.D., W.O. No. 1764. * The Director of Military Operations.
Carte de la Bouché du Niger. Echelle de 1/500,000. Paris: Service Géographique des Colonies, 1897. * M. Camille Guy, Chef du Service.
Map of the Congo Free State. Scale, 1/4,000,000. Intelligence Division, War Office. No. 1882. * Director of Military Operations.

Map of Africa. Scale, 1/250,000. British Central Africa. Sheets 111 H, Fort Maguire; 111 K, Debza Boma; 111 L, Mlangeni; 111 O, Kirk Mountains; 111 P, Blantyre; 117 D, Chiromo. I.D., W.O. No. 1479.

* The Director of Military Operations.

Map of Africa. Scale, 1/250,000. Egyptian Sudan. Sheets 46 J, Karora; 55 C, Geili; 55 D, Rera; 55 E, Kagmar; 55 G, Wad Medani; 55 H, Gedaref; 55 I, El Obeid; 55 K, Sennar; 55 L, Doka; 55 O, Karkoj; 55 P, Middle Dinder; 56 A, Kassala; 56 I, Nogara; 66 C, Roseires; 66 J, Lower Sobat. Index Sheet to sheets published, October, 1904, and Skeleton Map. I.D., W.O. No. 1489. * The Director of Military Operations.

The Anglo-Egyptian Sudan. Scale, 1/4,000,000. I.D., W.O. No. 1856. Compiled in the Intelligence Office, Khartoum, May, 1904. * The Director of Military Operations.

AMERICA.

Prof. Dr. A. Bludau und Otto Herk. Nord-Amerika (Map of North America) aus Sohr-Berghaus Hand Atlas, IX. Auflage. Masstab, 1/10,000,000. I. Auflage. Glogau: Carl Fleming. * The Publisher.

AUSTRALASIA.

Geological Sketch Map of the country in the vicinity of Sydney. Prepared under the Direction of E. F. Pittman, A.R.S.M., Government Geologist. Scale about 2½ miles to an inch. Sydney, N.S.W.: Department of Mines, 1903. * Department of Mines.

The New Zealand Lakes. From Surveys by Keith Lucas, B.A. Lake Taupo (1,211 ft. above sea level). Scale, 1/200,000. Lake Wakatipu (1,016 ft., approximate above sea level). Scale, 1/200,000. Lakes of the Middle Waikato. Scale, 1/100,000. Lake Rotoiti (910 ft. approximate above sea level). Lake Waikare Moana (2,015 ft. above sea level). Scale, 1/100,000. Lake Rotorua (915 ft. above sea level). Scale, 1/200,000. Lake Manapouri (597 ft. above sea level). Scale, 1/100,000. London: Royal Geographical Society. * The Society.

POLAR REGIONS.

Map showing track of the S.Y. "Morning," to accompany Captain W. Colbeck's Report on the Second Antarctic Relief Expedition, 1903-4. Scale, 1/15,000,000. London: Royal Geographical Society. * The Publishers.

ATLASES, ALBUMS, PHOTOGRAPHS, &c.

The Survey Atlas of England and Wales. A series of 84 plates of maps and plans, with descriptive Text, illustrating the Topography, Physiography, Geology, Climate, and the Political and Commercial Features of the Country. Designed by and prepared under the direction of J. G. Bartholomew, F.R.S.E., F.R.G.S. Edinburgh: John Bartholomew and Company. Parts XIII to XXI. * The Publishers.

Stanford's Geological Atlas of Great Britain (based on Reynolds' Geological Atlas) with plates of Characteristic Fossils. Preceded by a description of the Geological Structure of Great Britain and its Counties; and of the Features Observable Along the Principal Lines of Railway, by Horace B. Woodward, F.R.S., F.G.S. London: Edward Stanford, 1904. * The Publisher.

Philip's Atlas of Comparative Geography for Junior Classes. A series of 40 coloured plates, containing over 90 maps and diagrams, with 8 pages of Introductory letterpress and index. Edited by George Philip, F.R.G.S. London: George Philip and Sons Limited, 1903. * The Publishers.

Book of Photographs of the Louisiana Purchase Exposition, 1904. St. Louis. Mo.: The Official Photographic Company. * Mr. H. C. Martin, F.R.G.S.

BOOKS.

GENERAL.

- The Traveller's Gazette*: An illustrated Journal devoted to Travel. Vol. LIV., Nos. 1-12. (February, 1904, to January, 1905.) London: Thos. Cook and Son. * The Publishers.
- Mediterranean Winter Resorts*: A complete and Practical Handbook to the principal Health and Pleasure Resorts on the Shores of the Mediterranean, with special articles on the principal invalid stations by resident English Physicians. By E. A. Reynolds-Ball, F.R.G.S. London: Watson and Viney Limited. 1904. Map and Diagrams.* The Publishers.
- Glossary of Geographical and Topographical Terms and of words of frequent occurrence in the composition of such terms and of place-names.* By Alexandra Knox, B.A., F.R.G.S. Stanford's Compendium of Geography and Travel (Supplementary Volume). London: Edward Stanford 1904. * The Publisher.
- On Recent Contributions to our Knowledge of the Floor of the North Atlantic Ocean.* By Sir John Murray, K.C.B., F.R.S., D.Sc., and R. E. Peake. M.Inst.C.E. London: The Royal Geographical Society. 1904. * The Society.
- Physique du Globe et de Météorologie.* Par M. Alphonse Berget, Docteur ès Sciences. One volume in 8 cavalier de 365 pages, avec 123 figures et 14 Cartes hors texte. Paris: C. Naud. 1904. * The Publishers.
- Norddeutscher Lloyd's, New Twin-Screw Express Steamship "Kaiser Wilhelm II."* Illustrated. * Messrs. Keller, Wallis, and Company, Manchester.
- Descriptive Account of the N.D.L. S.S. "Kaiser Wilhelm II."* Illustrated. * Messrs. Keller, Wallis, and Company, Manchester.
- In the Second Class of a Norddeutscher Lloyd Eastern Liner.* (Reprinted from a passenger's letter home.) Illustrated. * Messrs. Keller, Wallis, and Company, Manchester.
- To Lands across the Sea.* By Frank Presbrey. (Reprinted from *Harper's Magazine* by the Norddeutscher Lloyd.) Illustrated. * Messrs. Keller, Wallis, and Company, Manchester.
- Descriptive Account of the Norddeutscher Lloyd.* Illustrated. * Messrs. Keller, Wallis, and Company, Manchester.
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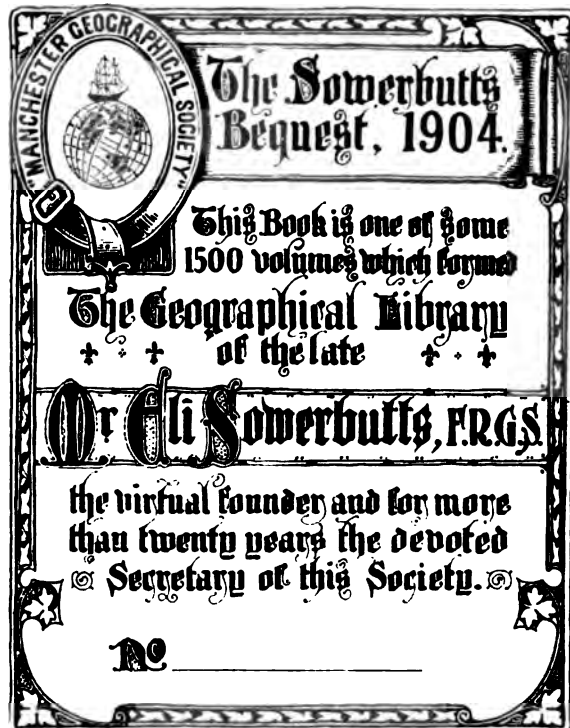
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PLEASE NOTE.

There have also been added to the Library the books mentioned in the accompanying Book Plate, kindly designed by Mr Joel Wainright, J.P. A list of these books can be seen at the Library.



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LIST OF MEMBERS.

December 31st, 1904.

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THE
MANCHESTER GEOGRAPHICAL SOCIETY.

RULES.

I. OBJECT AND WORK.

The object of the Manchester Geographical Society is to promote the study of all branches of Geographical Science, especially in its relations to commerce and civilisation.

The work of the Society shall be:—

1. To further in every way the pursuit of the science; as, by the study of official and scientific documents, by communications with learned, industrial and commercial societies, by correspondence with consuls, men of science, explorers, missionaries, and travellers, and by the encouragement of the teaching of geography in schools and colleges.

2. To hold meetings at which papers shall be read, or lectures delivered by members or others.

3. To examine the possibility of opening new markets to commerce and to collect information as to the number, character, needs, natural products and resources of such populations as have not yet been brought into relation with British commerce and industry.

4. To promote and encourage, in such way as may be found expedient, either alone or in conjunction with other Societies, the exploration of the less known regions of the earth.

5. To inquire into all questions relating to British and Foreign colonisation and emigration.

6. To publish a Journal of the proceedings of the Society, with a summary of geographical information.

7. To form a collection of maps, charts, geographical works of reference, and specimens of raw materials and commercial products.

8. The Society shall not enter into any financial transactions beyond those necessarily attached to its declared object, and shall not make any dividend, gift, division, or bonus in money unto or between any of its members.

II. ORGANISATION.

9. The Society shall consist of ordinary, associate, corresponding, and honorary members.

10. A Council shall be chosen annually from the ordinary members to conduct the affairs of the Society. It shall consist of a President, four or more Vice-Presidents, a Treasurer, two or more Honorary Secretaries (including a Secretary for Foreign Correspondence), and twenty-one Councillors.

11. There shall be three Trustees elected by the Society, who shall hold office until death, disability, insolvency, or resignation. They shall be members of the Council by virtue of their office.

12. Any vacancy occurring in the Council during the current year may be filled up by the Council.

III. ELECTION OF MEMBERS.

13. Every candidate for admission into the Society as an ordinary or an associate member must be proposed by a member. The proposal shall be read out at the next Ordinary Meeting of the members, and any objection shall be forwarded in writing to the Secretary within seven days.

14. The election of members is entrusted to the Council. The names of those elected shall be announced from the chair at the next Ordinary Meeting after the election.

15. The Secretary shall within three days forward to every newly-elected member notice of his election, a copy of the Rules of the Society, and a card announcing the days on which the Ordinary Meetings will be held during the session. But the election of an ordinary or associate member shall not be complete, nor shall he be permitted to enjoy the privileges of a member, until he shall have paid his first year's subscription. Unless such payment be made within three calendar months from the date of election the election shall be void.

16. The Council shall have power to elect honorary and corresponding members

17. Women shall be eligible as members and officers of the Society.

IV. PAYMENTS.

18. An ordinary member shall pay an annual subscription of £1 1s., or he may compound by one payment of £10 10s. An associate member shall pay an annual subscription of 10s. 6d. The Society's year shall begin on the first day of January.

19. Members shall not be entitled to vote or to enjoy any other privilege of the Society so long as their payment shall continue in arrear, but associate members shall not vote nor shall they take any part in the government of the Society.

20. The first annual payment of a member elected in November or December shall cover his subscription to the 31st December in the year following.

21. On the first day of January in each year there shall be put up in the rooms of the Society a complete list of the members with the amount of their subscription due, and as the amounts are paid the fact shall be marked on the list.

22. Notice shall be sent to every member whose subscription shall not have been paid by the first of February, and if the arrears are not discharged by the first of July the Council may remove the member from the list of members. Any member, whose subscription is in arrear for two years shall not be entitled to receive the Journal of the Society

V. MEETINGS.

23. The meetings of the Society shall be of three kinds—Ordinary, Annual, and Special.

24. In all meetings a majority of those present shall decide all questions, the President or Chairman having a casting vote in addition to his own.

ORDINARY MEETINGS.

25. The Ordinary Meetings of the Society shall be held once a month, from the month of October to the month of May, or oftener, if judged expedient by the Council.

26. All members whose subscriptions are not in arrear shall have a right to be present. All ordinary members shall have the privilege of introducing one visitor.

27 The order of proceedings shall be as follows :—

- (a) The minutes of the last meeting to be read and if correctly recorded they shall be signed by the Chairman.
- (b) Presents, whether of money, books, maps, charts, instruments or specimens made to the Society to be announced.
- (c) The election of new members to be declared and the names of candidates to be read.
- (d) Papers and communications to be read and discussed.

28. At these meetings nothing relating to the rules or management shall be brought forward, but the minute book of the Council shall be on the table at each meeting for the inspection of any member, and extracts therefrom may, with the consent of the chairman, be read to the meeting on the requisition of any member.

29. On occasions of exceptional interest the Council may make provision for a larger admission of visitors.

ANNUAL MEETINGS.

30. The Annual Meeting of the members shall be held at such time and place as the Council shall determine.

31. Fourteen days' notice of such meeting shall be sent to every member within the United Kingdom who has given his address to the Secretary, and notice of the meeting shall be advertised in such newspapers as the Council may direct.

32. The object of this meeting shall be to receive the Annual Report of the Council and the Treasurer's Balance Sheet, to hear the President's address, to elect the Council and officers for the ensuing year, and to transact any other business.

33. Any two ordinary members may nominate candidates for the Council or for office not later than one week prior to the day of election, and the names of candidates so nominated shall be at once put up in the rooms of the Society. The election of the Council and officers shall be by ballot.

SPECIAL GENERAL MEETINGS.

34. The Council may call a Special General Meeting of the Society whenever they shall consider it necessary, and they shall do so if required by 20 ordinary members.

35. A week's notice of the time and object of every Special Meeting shall be sent to all members. No other business shall be entertained than that of which notice has been thus given.

36. Twenty ordinary members shall form a quorum.

VI. COUNCIL AND OFFICERS.

THE COUNCIL.

37. The government of the Society shall be entrusted to the Council, subject to the rules of the Society.

38. The Council shall annually elect a Chairman and Vice-Chairman.

39. The President or the Chairman, or any three members of the Council, may at any time call a meeting thereof, to which every member of the Council shall be summoned.

40. Seven shall form a quorum.

41. In order to secure the most efficient study and treatment of the various subjects which constitute the chief work of the Society, the Council may appoint Committees for special purposes. These Committees, with the approbation of the Council, may associate with themselves any persons—whether members of the Society or not—from whom they may desire to obtain special assistance or information. The Committees shall report to the Council the results of their proceedings.

42. The President, Chairman, Vice-Chairman of the Council, and the Honorary Secretaries, shall, by virtue of their offices, be members of all Committees appointed by the Council.

PRESIDENT AND VICE-PRESIDENTS.

43. The President is, by virtue of his office, the chairman of all the meetings of the Society. In the absence of the President, one of the Vice-Presidents may preside.

CHAIRMAN OF THE COUNCIL.

44. It is the duty of the Chairman of the Council to see that the rules are properly observed, to call for reports and accounts from Committees and Officers, and to summon, when necessary, special meetings of the Council and of Committees.

TREASURER.

45. The Treasurer has the charge of all accounts; he shall pay all accounts due by the Society after they have been examined and approved by the Council.

46. He shall see that all moneys due to the Society are collected, and shall have power, with the approval of the Council, to appoint a collector. All moneys received shall be immediately paid to the bankers of the Society.

47. The bank passbook and the book of accounts shall be laid upon the table at every ordinary meeting of the Council.

48. The accounts shall be audited annually by two members, who shall be elected at an ordinary meeting at least one month before the Annual Meeting.

SECRETARIES.

49. The duty of the Honorary Secretaries shall be :—

- (a) To conduct the correspondence of the Society and of the Council.
- (b) To attend the meetings of the members and of the Council, and minute their proceedings.
- (c) At the ordinary meetings, to announce gifts presented to the Society since their last meeting; to read the names of all new members and of candidates for admission, and the papers communicated to the Society, which have been directed by the Council to be read.
- (d) To have immediate superintendence of all persons employed, to make arrangements for the meetings of the Society, and to take charge of all maps, books, furniture and other effects.

50. It shall be the more especial duty of one of the Honorary Secretaries to conduct, as may be directed by the Council, correspondence with Foreign Societies, and with persons resident abroad.

51. In addition to the Honorary Secretaries, there shall be a paid Secretary appointed by the Council, whose duties shall be to assist the Honorary Secretaries, to issue the notices of the Council and of the Society, and to act under the instructions of the Council.

The foregoing Rules, as now amended, were approved and adopted at a meeting of the members of the Society, of which due notice had been given to the members, held in the Town Hall, Manchester, Wednesday, October 3rd, 1894.

(Signed)

GEORGE, *President.*

S. ALFRED STEINTHAL, *Chairman.*

F. ZIMMERN, *Honorary Secretary.*

JAS. D. WILDE, M.A., *Honorary Secretary.*

ELI SOWERBUTTS, *Secretary.*

[COPY.]

It is hereby certified that this Society is entitled to the benefit of the Act 6 and 7 Vict., Cap. 36, intituled "An Act to exempt from County, Borough, Parochial, and other Local Rates, Lands and Buildings occupied by Scientific or Literary Societies."

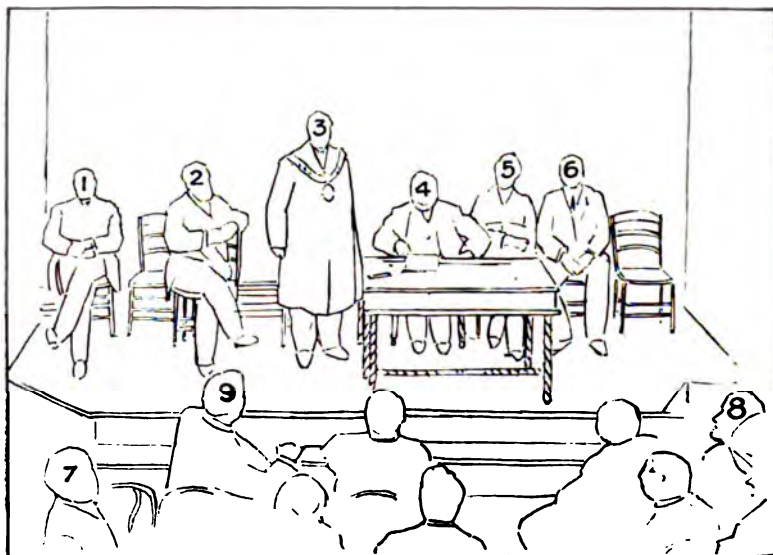
Seal of Registry of
Friendly Societies.

This 15th day of January, 1895.

E. W. B.



MANCHESTER GEOGRAPHICAL SOCIETY.
OPENING OF THE NEW HALL, OCTOBER 19TH, 1905.
(See page 155.)



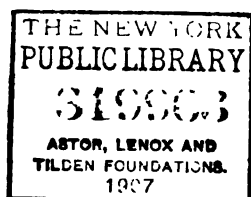
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1905.



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THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY

SOME NOTES ON JOURNEYS IN SOUTH-EASTERN PERSIA.

By HERBERT R. SYKES, F.R.G.S.

[Addressed to the Society in the Coal Exchange, Market Place, on March 14th, 1905, at 7-30 p.m.]

A GLANCE at the map of Persia reveals a country of mountain ranges. Tracing the more formidable of these from the north-western limits of Iran, the eye follows range upon range, running in a south-easterly direction, through the Bakhtiari country, following the general direction of the Persian Gulf littoral, until Farsistan is reached. Here the direction becomes east and west, and on approaching the Baluchistan borders the original direction is reversed, and, taking a north-easterly trend, the mountains merge gradually into the Hindu-Kush and Himalayan ranges. Within the semi-circle thus formed lies the Iran Plateau, as it is often termed.

One peculiarity of this physical conformation is that between the Karun, which empties its waters into the head of the Persian Gulf, and the Indus, which flows into the Indian Ocean at Kerachi, there is no river of any importance which finds its way to the sea.

Nearly all the rivers of Persia, then, empty themselves into inland lakes or swamps, or become lost in sandy tracts, or are evaporated by the fierce summer suns before they reach these depressions.

Thus the Halil Rud, after a course of 200 miles, emerging from the snows of the Lalazar and Jumal Bariz ranges, flows into the Jaz Morian, a swamp lying in the districts of Rudbar and Bampur. North of the Lalazar range, which is one of the great watersheds of Persia, the melting snows are dissipated in a sandy tract between Kerman and Yezd. The Helmund, which flows into Sistan from the highlands of Afghanistan, is another example of the fact; but about this I shall have more to say when I come to deal with Sistan.

For magnificence of rock scenery Persia would, indeed, be hard to beat, and of the many grand spectacles which met my view in my journeys—which totalled up to a distance of 3,600 miles—perhaps the Kuh-i-Shaml stands out foremost. It lies about 40 miles north-east of Bander-Abbas and faces the Shaml plain, a magnificent

face of rock, almost perpendicular, and rising to a height of nearly 8,000 feet. From our camp at Kush-Kuh, three or four miles from its base, it is hard to realise in the clear air of Persia the true proportions of this stupendous precipice, and the second time I passed through Kush-Kuh I was even more impressed with its grandeur than on the first occasion.

Nearly all Persia is a vast desert, dry and arid. Every few miles the traveller comes upon a village where, by laboriously harnessing a spring in the neighbouring mountains and conducting it through an underground channel to a cultivable spot, the villagers are enabled to grow enough wheat and barley to tide them over the year. In the lowlands—that is to say, up to an altitude of 3,000 feet—in Southern Persia the date palm grows well, and supports the life not merely of the inhabitants themselves, but also of their camels and cattle.

The rate of progression in a country where roads are unknown, and where owing to the presence of innumerable mountains it is not always possible to follow a very direct line, is necessarily very slow. The “roads” are the mere tracks worn by the feet of millions of mules and camels from time immemorial, and the rate has not increased one jot or tittle since the first camel was caught and subjected to his load by primeval man. The caravan routes, too, have not altered, for man has ever sought lines of least resistance; and, in Southern Persia at all events, no attempt has ever been made to overcome the obstacles which Nature has placed in the way of man’s progress. The traveller is therefore limited in his advance by the capacity of his beasts of burden, and this works out at an average of about 15 miles per day. An average of 100 miles per week may be regarded as good going when travelling “*en caravane*.” Wherever I went I always found the natives friendly and agreeable, particularly in the villages. In the whole of my travels I never received an insult, and have sometimes been surprised to read accounts by travellers who have had to resort to threats and even a show of hostility before obtaining what they required. Often a little tact is all that is wanted, for the Persians are the politest people in the world, and a smile and a cheery word is seldom expended in vain.

The natives may be divided into two general classes—the townspeople and villagers, who live in fixed abodes, and the nomads, who move about from place to place according to the season. These latter often live by plunder, and harass the villagers to no small extent, and the unfortunate villagers can get no sort of compensation from their government, which makes no attempt to put down brigandage. These nomads belong to tribes which vary in size from ten or twenty families up to as many as 4,000 or 5,000. They generally marry in their own tribes, but in the case of the smaller tribes, where marriage would not be possible, a double marriage with a neighbouring tribe often settles the difficulty.

The natives of Persia are capable of enduring considerable fatigue and walking long distances at a stretch, and on this the inhabitants of Yezd particularly pride themselves. I once had occasion to send an urgent message over a distance of 100 miles, and for this purpose I obtained the services of a native in a village where I was staying.

It was 9 o'clock on Monday night when I dispatched my messenger on foot—at the end of a day's work in the fields—and he delivered my letter on the Wednesday afternoon in about 42 hours! But I fear there is a great deal of illness—the result of neglect and ignorance—underlying an otherwise healthy constitution; and this I found out when travelling for three weeks with an English doctor.

Well, I have given you a short general description of Persia as I saw it, and now propose to tell you something about Sistan, politically, historically, and geographically one of the most interesting parts of the Shah's dominions.

Sistan is the most easterly of all the Persian provinces. It is bounded on the east and south-east by Afghanistan, and cut off in every direction from the rest of the world by huge extents of desert country.

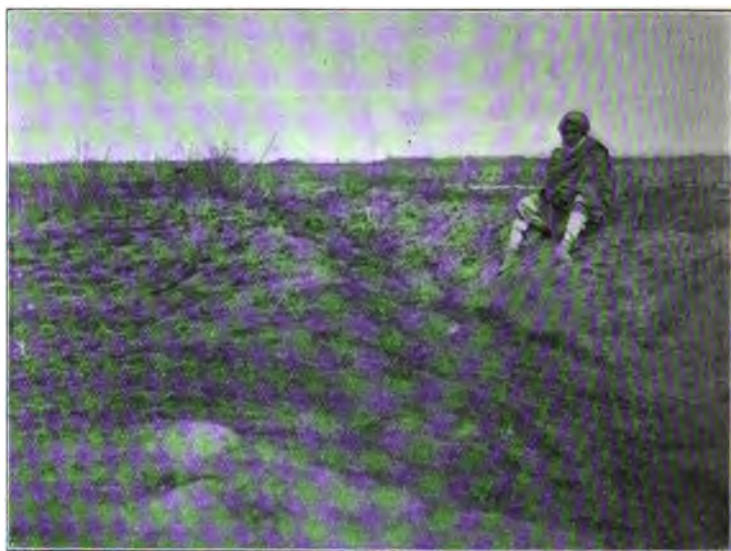


MAIN STREET IN NASRATABAD, CAPITAL OF SISTAN.

Lying at an altitude of only 1,600 feet above sea level, it constitutes a huge and apparently limitless sandy plain. Climbing on to the roof of the British Consulate at Nasratabad, the capital, you may scan the horizon in every direction except the north-west and west, and search in vain for a sign of those mountain ranges which are the universal concomitant of Persian scenery. In the direction mentioned, and in that alone, your eye will make out a thin blue line, which indicates the Neh-Bundan and Polang ranges at a distance of 50 or 60 miles. The rest of the scene presents a flat khaki-coloured plain, cut with tamarisk-fringed ditches, and dotted here and there with reedy pools of sour stagnant water. Hardly a tree meets the eye,

for there is no timber except the tamarask jungle in all Sistan. To such an extent is this scarcity of timber felt that when I was leaving the country and required two crates in which to carry a few live fowls, I was only able to get *one* made!

The Helmund is to Sistan what the Nile is to Egypt, for it converts an otherwise barren waste into a valuable corn-growing district. This magnificent river, which at its lowest is about equivalent in volume to the Thames at Richmond and at its height sends down a volume of water about twenty times as great, rises in the heights of Afghanistan and thence flows in a south-westerly direction till it nears the borders of Persia; then, sweeping round in a wide curve, it takes a northerly direction and pours its waters into the Hamún," as the large lagoon is called, and irrigates through innumerable channels



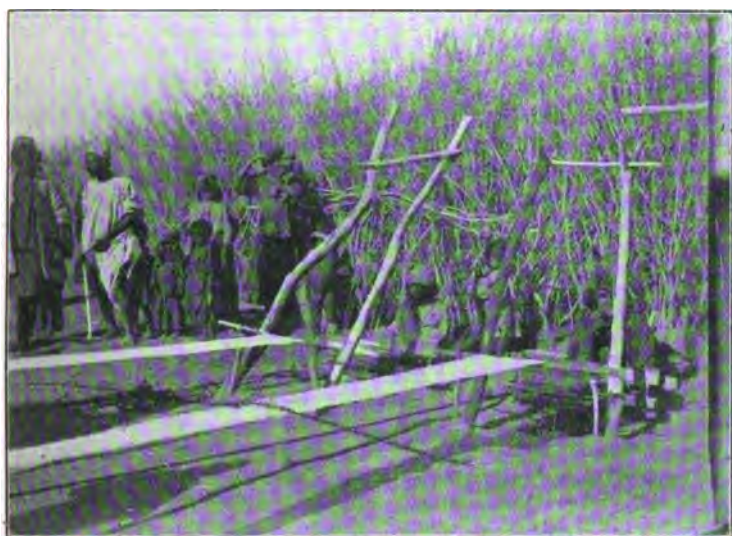
THE OLD BED OF THE HELMUND CONSTITUTED THE BOUNDARY
BETWEEN PERSIA AND AFGHANISTAN IN 1872.

the plain of Sistan. Sistan, then, is the delta of the Helmund. As spring progresses, the waters of the Helmund, fed by the melting snows of Afghanistan, rise, and the Hamún extends southward until a vast amount of flat ground is inundated, and the overflow water, passing along to "Shela," empties itself in the Goad-i-Zirreh, a tract of marshy country near the Afghan-Baluch border. In the summer much of Persian Sistan is under water, and communication between the villages is not easy.

As a result of this annual flooding of the Helmund, the main course of the river is constantly changing within a few miles of the Hamún. This has been the cause of some trouble, as the bed of the Helmund was constituted the boundary between Persia and Afghanistan

by the Goldsmid Mission of 1872, and since then the river has moved eight miles into Persian territory. Nor is this by any means an unusual occurrence in a perfectly flat country like that through which a river threads its course, and in proof that these conditions have been obtaining in Sistan for many years, there is to be seen there in almost perfect condition a bridge of two arches now completely filled in with sand, and far away from any running water, while the ruins of ancient Sistan show that at one time a river or canal flowed where now is nothing but the sands of the desert.

The natives of Sistan are an admixture of Afghans and Baluchis, and the language they speak is a very impure Persian, containing so many Baluch and Pushtu words that I had great difficulty in



WEAVING CALICO IN A VILLAGE IN SISTAN

understanding the natives. They live by agriculture, and, aided by the waters of the Helmund, they grow a large amount of corn, much of which is exported into the less-favoured districts of Persia.

Besides the agricultural population there are two classes who live by the shores of the Hamún. They are called respectively "Govdars," or cow-herds, and "Sayáds." The Govdars, as their name implies, live by pasturing cattle on the "Naizar," as the huge belt of reeds that surrounds the Hamún is called. I am told it is not uncommon thing during the summer months to see a herd of cattle browsing shoulder-deep in the shallow waters at a distance of several miles from the shore. It is to be assumed that they spend several days at a time in the water, and thus avoid the torment of the millions of flies that a Sistan summer produces.

The Sayáds make their living by the capture and sale of the wild fowl which haunt the Hamún in myriads. Here you may see nearly every sort of aquatic bird from snipe to swans. They catch the duck in nets, and the annual export of feathers from Sistan is enormous.

The origin of the Sayáds, who are a different race from the rest of the Sistans, is somewhat obscure. The most probable solution to the problem is that they are the descendants of the aboriginal Sistanis who escaped the fury of Tamerlane, the conqueror of Sistan, in the thirteenth century. Fleeing on rafts into the Naizar, they were probably able to maintain life while the ruthless Tamerlane put the rest of the population to the sword. If this is so, it is curious to remark how through the six succeeding centuries they have maintained their connection with the water and the reeds.

No description of Sistan would be complete without a reference to the Kuh-i-Khwaja, the only hill in Sistan. Lying some 15 miles south-west of Nasratabad, the capital, this basaltic rock stands solitary in the midst of the plain. It is about 450 feet in height and a mile in diameter. So steep are the sides that the summit can only be reached at two points on its southern side. Its base is washed by the waters of the Hamún, and its position in old days gave it the advantages of a practically impregnable fortress. At one of its only assailable points, on the lower slopes, are the ruins of an ancient fortified town some 200 or 300 yards square, and above it stands the fort of Kúk. The top of the rock is not as flat as one might suppose it to be, judging by the appearance it presents from below, but is considerably broken and undulating. One wonders as one gazes on this stony rugged surface how the inhabitants manage to conduct their annual horse races on a ground which presents more terrors to the rider than most steeplechase courses in England would. But I was assured that every "No-Ruz," or New Year's Day (March 21st), the Sistanis resort thither for this time-honoured sport. It is certainly the worst race-course obtainable in all Sistan! The summit contains many graves of the ancient inhabitants, built *above ground*. The tombs are cemented stone vaults in which the bodies reposed. I looked inside several that were opened, but saw no trace of human remains, although other travellers have done so, notably Mr. Savage-Landor.

I left Nasratabad, the capital of Sistan, on the 20th of February, 1904, and two stages brought me to Varmal, the last inhabited spot for 130 miles. Here I found waiting for me Samad Khan and a few camels, which were to carry provision for my caravan of mules and my horses until the other side of the desert was reached. I was warned not to rely on obtaining a further supply of provisions at Nasratabad Ispi, the only village encountered in the whole 230 miles, so I instructed my muleteer to buy not less than 12 days' supply. When I saw Samad Khan's camels I was disappointed to find he had not provided me with enough, and that two of them were small ones incapable of carrying a full load, and I was obliged to supplement my transport by the addition of a dozen donkeys, which were to be sent back after three or four stages. The success of a march across a desert like the Lut depends largely on making a good "tundobust"

to begin with. Failure of any part of the transport may wreck the entire enterprise. I was therefore obliged to wait a day, making good all my arrangements and buying fodder, and on the 23rd February I rode out into the wilds. Asuk was reached after four hours' riding, and the next day Rigáwák. At both spots there are hollows in the sand, containing pools of evil-looking water. The one at Asuk was so foul smelling I could hardly approach within five yards of it.

At Rigáwák, 52 miles from Nasratabad (Sistan), news was brought that the water at Baghal-i-Kuh, 23 miles further on, had dried up, and there was nothing for it but to press on to Turshab, 40 miles distant. I started two hours before sunrise, and at sunset I was still in the saddle, but a stream of sweet clear water was flowing past me and my mind was at rest. I admit I *had* had fears that the water at Turshab might also have dried up. And then? The next day I moved only four miles, to a more congenial spot, and on the 27th reached Garaghu, another well in the midst of nowhere. I left camp at six a.m., and about noon was wet to the skin by a heavy thunderstorm of an hour's duration, so that to stop for lunch was impossible until my clothes had dried, so I lunched somewhere about four o'clock in the afternoon, and was ravenous.

Nasratabad Ispi was reached on the 29th of February. It lies 130 miles from Varmal and 100 from Faraj, and must be one of the loneliest spots in the world. I pitied the inhabitants who are condemned to each other's society for ever, for some of them had never left the village, and but seldom seen a strange face beyond that of the occasional traveller or camel driver who uses that particular road.

The Kat-Khudár, or head man, rendered me every assistance, for which I presented him with a cheap watch. This, however, he returned the next day, and asked me to give him its equivalent in money. Of what use was a watch to him? The sun rose and the sun set; that was his day. He never had an appointment to keep, and the time of day was not a matter of the slightest interest.

At ordinary times the 100 miles between Ispi and Faraj must be accomplished in three stages. At only two points—Gurg (36 miles) and Shurgaz (31 miles)—is water to be obtained, but the rains which had rendered camp life a doubtful pleasure had filled the streamlets, so I was enabled to divide my journey into less irksome stages. I reached Faraj and Bam without further adventure, and on the 15th of March rode into Kerman, where I met Major and Mrs. Molesworth Sykes and enjoyed once more the luxury of a roof.

I propose now to deal with a journey which I made in February and March, 1903, between Kerman and Bander-Abbas, the port on the Persian Gulf. The main interest of this route lies in the fact that it is the most suitable of all the caravan routes leading from Bander-Abbas on to the Iran plateau for the construction of a railway.

I have traversed in all four routes between these two points (Kerman and Bander-Abbas), and in no other case did I find a tract of country through which a railway could be carried at so little cost of engineering skill, nor where the levels and gradients lend themselves more readily to the engineer's requirements. Moreover, from the political and commercial standpoint I venture to think this route will compare favourably with any other route to the interior having

Bander-Abbas as its base. Any line constructed in Southern Persia must, I think, be considered from a strategic as well as from a commercial point of view, for the population in these regions is too scattered and the purchasing power too small for any line to be an unqualified financial success. It is hardly within the range of these pages, which are geographical, to discuss the strategic importance of this route, beyond stating that here lies the road by which such a line could be joined up with our Indian system of railways, which is pushing its way even now westward from Quetta in Baluchistan. With regard to its commercial value, the line will tap the edge of



THE SHRINE AT MAHUN.

the Jiruft plain, which, watered as it is by the Halil Rud river, might be converted into almost as valuable a corn-growing centre as Sistan, and corn from this district would find a ready sale in Kerman, which for months every year is on the verge of starvation.

I will describe the route, as I traversed it, from Kerman to Bander-Abbas, a distance of 430 miles. Kerman lies at an altitude of 5,600 feet above sea level, at the junction of several valleys, and even more caravan routes. I turned my back on the British Consulate on February 9th, 1903, and with three horses, 20 mules, and six servants set out on my month's journey to the coast.

After crossing 18 miles of plain, I reached Mahun, at an elevation of 6,100 feet. Mahun is celebrated for its shrine, one of the wonders of Eastern Persia, and the Prince's Garden, a veritable paradise of shady trees, cascades, and flashing fountains. Here I found myself entering a valley some three or four miles in width at its narrowest point, and the next day's stage brought me to the Zain-al-abad caravanserai, 14 miles further on, at an elevation of 7,300 feet. The top of the pass is 800 feet higher, and this rise occurs within a distance of 12 miles. The actual summit of the pass is a broad plain four or five miles in width, and from here there is a descent of 700 feet to Naibid caravanserai, but so wide is the plain that the railway can easily avoid the steep gradient by zig-zagging once or



THE SUMMIT OF THE ZAIN-AL-ABAD PASS (8,150 FEET).

twice across the valley. From the Naibid caravanserai to Kháneh-Khatún is 24 miles, with a further drop of 2,000 feet. But here again there is no necessity for expensive tunnelling and awkward loops; the width of the valley, which begins to widen perceptibly after Naibid is passed, gives the engineer ample scope for manœuvring. From Kháneh-Khatún to Rigán (88 miles) there is a further drop of only 3,000 feet, and the plain is 30 or 40 miles in width.

The gradients are nowhere severe, and the lay of the country admirably adapted for the construction of railways. Throughout the whole of the section from Kerman to Rigán (167 miles) not a single tunnel would be necessary, and by judicious deviations no steeper gradient than 1 in 100 need be encountered. Following the caravan route, which naturally takes the shortest way, I only once encountered a gradient of 1 in 30 for a distance of about two miles, the other

gradients between Kháneh-Khatún and Zain-al-abad varied from 1 in 114 to 1 in 50.

Rigán (2,200 feet) is the lowest point so far, and here the ground ascends again and becomes rather more difficult at certain points, as the railway would be required to cross deepish "nalas," or dry water courses. In 33 miles we have risen 1,300 feet, and reached Dahan-i-Abbas Ali. The next dozen miles offers the only real crux. The short steep ascent and descent over the Gishán pass must be made. The summit of the pass is 4,100 feet; the valley leading thereto is narrow and winding. The last half mile up to and the first half mile beyond are steep even for mules, but 2,000 or 3,000 yards of tunnel would obviate this difficulty. At Mil-i-Farhad, eight miles from the summit of the pass and 1,000 feet below it, we emerge once more



VIEW FROM THE TOP OF THE GISHAN PASS.

on to a broad plain, a continuation of Jiruft valley, and which we keep to for nearly 80 miles, till Kala-Kahnu is reached at 1,700 feet.

My experiences of the 120 miles between Rigán and Kala-Kahnu were not of the pleasantest. I had loaded up my mules at Rigán with four days' provisions, expecting to find fodder again at Masítabad, the fourth stage; but here I was informed that nothing was to be obtained owing to the drought which had supervened during the last two years. I was thus obliged to change my route, and instead of taking the more direct caravan route across the Ginao pass. I made for Bijenabad, two stages further on. Here again I was doomed to disappointment, and it was only the fact that the advancing spring had brought up a certain amount of rough desert grass on which my animals grazed that saved us from a very awkward position.

Barley I could obtain none, and one one occasion I could only get a supply of "derramshúr," a dry grass, not unlike rushes, that grows on the sand dunes. I crossed the Halil Rud 12 miles to the east of Kala Kahnú, where my troubles ended, for provender was forthcoming.

The two stages (40 miles) between Kala Kahnú and Manuján were interesting, as I was the first European who had traversed the route certainly for a very long period, and what the map (the work of an Indian native surveyor) portrayed as a range of hills proved to be nothing more serious than a tract some two miles in breadth of somewhat broken ground, which the engineer would find but little difficulty in overcoming.

From Kala Kahnú there is a gentle rise of 500 feet in 20 miles; a descent of 1,000 feet to Manujan Fort (1,200 feet) in the next 20 miles. Here I found myself within the drainage area of the Gulf. Manujan lies on the banks of the Manuján river, whence by following its course I reached Birinti (28 miles), at an elevation of 800 feet. The next 19 miles to Mináb follows the course of the river through the range of hills which separates this country from the Shamíl plain, on which lies Bandar-Abbas. There are about a dozen or fifteen miles here that would certainly cause the engineer some trouble, but as the descent is only 300 feet in the whole 19 miles, there need be no serious gradient difficulties, although a certain amount of tunnelling, embanking, and bridging would be required, for the caravan route crosses and re-crosses the river at least ten times, and the valley is narrow in places and tortuous. Beyond Minab there lies the Shamíl plain, a sandy tract of country, cut out by a few shallow nalas, and interspersed with villages and date groves. Sixty-three miles divide Bander-Abbas from Mináb.

Thus you will see that except for the Mináb range and the Gishán pass the whole route to Kerman lies over what may truthfully be regarded as plain. For the great divide (though it certainly rises to an altitude of over 8,000 feet) may rightly be considered an elevated plain, and I have shown that the gradient need never be too severe for the haulage of heavy trains.

It had always been supposed that the hinterland of Bander-Abbas was utterly impracticable for railway construction, and this is certainly the case in regard to all the other routes leading from the port to the Iran plateau. The mountain ranges—and they are many—which intersect the three more westerly routes certainly present very serious difficulties. The ground is often terribly broken and undulating, and the defiles and gorges through which the caravan routes pass give no latitude and offer no alternative; and the engineer might well give up the task as almost hopeless. But through Mináb and Rigán we meet with less than 30 miles of what could, by the most extravagant stretch of the imagination, be termed *mountainous* country.

My experiences at Mináb were far from cheerful. I was camped in the only clean spot I could find, which was a pebbly bank in the Mináb river, and about 100 yards from the actual river bank. Three terrific thunderstorms followed one another during the night, and the next morning the river was considerably swollen, but was not within 80 yards of my camp, and certainly 15 feet below it. But as my servants were leisurely striking my tents preparatory to moving, the

river suddenly rose. The placid pool began to boil ominously, and in a few moments I saw that trouble was ahead. Calling up all the available aid, I had my things rapidly conveyed to the bank, and ten minutes later my camping ground lay under the gradually rising waters. Had this sudden rise occurred only a few hours earlier, I must have lost nearly all my belongings, besides running the risk of perishing myself in the flood!

Three more stages brought me to Bander-Abbas, and as I turned the last corner of the long sandy track the British Consulate came into view, the Union Jack flying gaily at the mast-head. It was one of the cheeriest sights I ever recollect to have seen, and until you have spent a month amongst a strange people, whose language and manners you but barely understand, you will not realise the pleasure that exists in the thought that a fellow countryman is within a mile of you. Thus ended the second and I think the most interesting of the four journeys I made between Kerman and Bander-Abbas.

NEW BOOKS.

L'EVOLUTION DE LA TERRE ET DE L'HOMME. Par G. Lespagnol. Cartes et illustrations. Paris: Ch. Delagrave. 1905.

MR. LESPAGNOL in this volume of 720 pages claims that Geography has now taken its place among the Sciences, and this work constitutes a General Geography of the Earth in a compact and comprehensive form.

In describing and explaining Geography he says: "L'accord magnifique de la Terre et de tout ce qui germe et se développe à la surface, l'harmonieux déterminisme de la vie naturelle, donnent à la géographie toute sa beauté et fixent son idéal."

The work is divided into four divisions, as follows: I. The Discovery of the Earth and the Evolution of the Science of Geography. II. Mathematical and Physical Geography. III. Human Geography. IV. Economic Geography.

The above indicates the scheme of the work, and it is copiously illustrated with over 300 maps, plans, and engravings, the source of which is indicated in each case. The whole forms a splendid text-book on the Science, and will well repay a careful study.

SOUVENIRS ENTOMOLOGIQUES: ETUDES SUR L'INSTINCT ET LES MŒURS DES INSECTES. Par J. H. Fabre. Tome IX. Avec illustrations. Paris: Ch. Delagrave.

THIS volume constitutes the ninth and last volume of Mr. Fabre's valuable work on insects. If the preceding volumes are as interesting as that now issued they will form a work which will be read with as much interest by ordinary readers as by entomologists themselves. These volumes embody the results of long years of observation, and are written with a fascination which causes those, who have just glanced at them without any intention of reading them, to apply themselves, on the contrary, to a study of their contents with so much the more interest, as they find there a true revelation of Nature from a point of view which had scarcely struck them previously. This volume contains articles on "La Licose de Narbonne, Les Epeires, Le Scorpion Languedocien, et Souvenirs Mathématiques," all of which prove of great interest, dealt with as they are by Mr. Fabre.

TAI YUAN FU TO HANKOW: AN OVERLAND TRIP IN
NORTH CHINA. ✓

By Professor R. W. SWALLOW, B.Sc.

[Read at the Children's Gathering in the Coal Exchange, on January 14th, 1905, and illustrated with forty lantern slides from photographs taken by Professor Swallow.]

BEFORE I begin describing an overland trip in China, I must express what I feel on account of the death of our friend and beloved secretary, Mr. Eli Sowerbutts. Away in a far country the news of the loss of friends makes the world seem more lonely than ever, and the only comfort we have is that we can say of Mr. Sowerbutts that his labours were great and his heart on the side of righteousness. May his life be an incentive to all of us to accomplish something, no matter at what sacrifice of ease and personal advancement. I hope that the life story of this great and good man will be written, so that we may see wherein lay the strength and purpose which enabled him to do so much more than the majority of his fellowmen.

The Chinese New Year holidays of the 30th year of the Emperor Kuang Hsü were later than usual, and as it was one and a half years since I had been out of Shansi Mr. Nyström, one of my colleagues, and myself decided that we must do something out of the common. With the blood of the Vikings stirring in his veins he suggested Dalny and Port Arthur, though, to do him justice, he did not believe war would be declared so soon, while I suggested Japan or Hsi Nan Fu. As a compromise we decided to go down to Hankow by the overland route, sail down the Yangtsekiang to Shanghai, go for a trip to Ningpo, and then come back *via* Tientsin and Peking.

Our first idea was to join the Peking-Hankow railway at Chêng Ding Fu (due west from here), go down as far as the north branch of the line would carry us, and then journey overland on horses until we reached the south branch of the line.

We had arranged for photographic supplies and stores to be sent down from Tientsin to Chêng Ding Fu, but it was suggested to us a few days before starting that a more interesting journey would be made if we went straight down from here to the south of Shansi, crossed over into Honan, and then rode down south to meet the railway. The only difficulty was that we could get no real information about the journey, except that it would be a very rough one, and if we did not get into Hankow before New Year's Day we should have a very hard time, as almost everything in the way of shops and inns closed for several days at that time. Everything depended on how far the railway had progressed up north, but we resolved to risk it, and went to

the Foreign Office to ask for special passports and the use of the official post horses when we needed them.

The official at the Foreign Office was very much surprised at our enterprise as he put it to us, and at our foolishness as he called it to a friend of ours, but he willingly granted our request, and sent an escort of two soldiers to scare wolves and evil spirits away, for anything else they would be unable to harm.

Accordingly, mounted on our faithful steeds, Methuselah and Kruger, and accompanied by three servants on post horses and two mules to carry the baggage, we set off, and before we had gone half a mile one of the servants was thrown off his horse, and we had a good scamper trying to catch it.

I ought to have said that, previous to starting, we had taken an affectionate farewell of our friends, and one of them, the Rev. Mr. Morgan, who is inclined to be rather pessimistic, asked us to pay him some contributions we had promised towards the building of a new



RESTAURANT IN HONAN.

chapel, as he was afraid he might not see us again. In spite of this, however, we had a good ride of thirty miles along the loess plain, keeping within sight of the mountains all the time, and arrived safely at Hsü Kou, a Hsien city, where we quickly found an inn and waited for the mules. As this was a good specimen of the inns which are to be found in this part of the country, perhaps I might describe it. It consisted of a square plot of ground with buildings on every side. At one end was the chief gate, and on either side of the gate were small rooms, together with the all-important kitchen. The two sides of the compound were mostly taken up by stables and carhouses, but towards the top there were several small rooms. At the end opposite the door was the shang fang, or chief guest room, while on either side of it were smaller rooms. Our servants, on entering, commenced to shout loudly for the chang kueit ti, or innkeeper, and when he appeared they called for the lin ma ti, or the man who leads the horses round until they are cooled down after their gallop. The

innkeeper at once took us to the shang fang, and we found it to be a long, oblong room, with brick beds at either end, while the only furniture was a table and a couple of chairs placed opposite the door.

The kangs or brick beds were covered with straw mats, but when we asked if they had a fire lit underneath them, he said "No," so we decided to take one of the side rooms where there was a fire.

The kang fire is made in a hole at the front of the kang, and the hot air is supposed to pass underneath the kang, and so out through a chimney at the other end.

The kang fire is a truly marvellous arrangement, and no one except a Chinaman can light it or keep it going. They first put in some lighted straw, and on the top of it add a few pieces of coal or charcoal, and when that is alight they put on a compound of mud and coal dust, which keeps lit for an incredible time, and provides one of the cheapest fires it is possible to imagine. Very often, however, the smoke does not go out of the room owing to some fault in the chimney, and many deaths occur every year from suffocation in this way. For those who are unaccustomed to it the heat of the kang is very uncomfortable, and one is very apt to get half roasted on the one side and starved on the other, while there is no small danger of some of the bedclothes falling down into the fire. The winter in North China is so severe, however, that one gladly runs all these risks when travelling, and in fact, it is not possible to do anything else.

Shortly after we arrived I was taken ill. The result was that I was kept awake all night, and heard all the noises and pandemonium, which seem inseparable from a Chinese inn. First, the muleteers were up half the night feeding their mules and shouting to one another for various reasons. Then a mule broke loose, and ran all over the yard, knocking several things over and causing a great rumpus. Then there came the ruck, ruck, ruck of the windlass as the empty buckets were let down into the well. Half the company seemed to be stirring long after midnight, and there were continual shouts of chang kwei ti, and after about four calls he would shout back. To crown all, a dog was let loose, and allowed to run all round the yard, while the bells on its collar tingled most abominably. This was too much for the hot Viking blood which runs through the veins of my companion, who, in a voice choked with emotion and anger, called out loudly for the chang kwei ti, and after many attempts he at last got that individual to answer. He then threatened to shoot the dog unless it was taken away at once, and when this had been repeated several times by our servants the innkeeper at last grasped the situation, and the bells were heard no more by us that night.

Next morning I was so unwell that Mr. Nyström wanted to ride back for a doctor, but as I got better during the day we decided not to do anything, but to wait and see how I was the next morning. The result was that I felt so much better that we started out in blissful ignorance of the fact that I had been suffering from appendicitis, and ought not to have stirred for over a week. Strange to say, I felt no worse for the journey, which was still in the plain, though the mountains were getting nearer all the time, and we stayed for the night at a village right at the foot of the mountains.

Next morning we were up early, and at once entered a mountain pass, and for the rest of the day we were going up and down, skirting boulders, crossing river beds, passing through huge awe inspiring cañons, and climbing up the sides of mountains. There is something fine and exhilarating in a mountain journey. It is then and only then that you seem to have left behind the shriek of the engine and the rumbling moan of the factory, and to be brought face to face with the great untamed forces of nature. The beautiful fresh air is a tonic for the blood, and you press forward with an eagerness which you have never felt before. Then, in the distance, you hear the tingle, tingle of the bells on the pack mules, and as the sound comes nearer you wonder at the skill and endurance of the animals as they pick their way between the rocks and jog along as though the road were as plain as a billiard table. On the last mule sits a big, fat Chinese merchant, swaying to and fro with the motion of the mules, and looking as comfortable as it is possible to be.

A little further on is a mule litter, moving so slowly that one wonders if it will ever get to its destination, while close behind is a woman dressed in white and riding on a donkey led by a youngster, who is evidently her son. No doubt her husband has died lately, and she is returning to her family. Then one hears that weird, plaintive screech, which passes in China for a song, and shortly afterwards the singer appears; he is a villager going to market, and after him trudge seven or eight men, each bearing two heavily-laden baskets suspended from a bamboo pole.

Towards dusk the camels appear. They are not supposed to travel in the day time because they frighten the mules, and as you watch the gaunt, ugly creatures pass you shudder yourself, and agree that night is the proper time for them to travel.

Towards the end of the day we did little else but climb, and at last reached a small village named Fên Shuei Ling, or the Water Dividing Chain of Mountains. The last part of the day's journey was extremely beautiful, the chief object of interest being the frozen waterfalls which abounded on every side. The journey had been very long, and to make matters worse there was no fire in the kang, and no coal to be had, so we had to have some charcoal lit in a shallow iron pan, and run the risk of being poisoned by the fumes.

Next morning we went down the other side of the watershed, and had a fairly easy journey to Chin Chow, where we found a good inn. The city was very dilapidated, and there was much vacant ground inside the walls. Just below the city we saw a narrow plain, watered by a fair-sized river, but the country was very poor, and the people seemed stricken down with poverty, while every inn and restaurant we entered was filled with wretched-looking opium smokers. For the noonday rest we went to a very dilapidated village, and in the first inn we could not find anyone at all. We accordingly went through the premises, and at last came upon the innkeeper, half stupified with opium, lying down upon a kang. His face was horribly diseased, and we ran away in terror, looking for another place. At last, by turning out several opium smokers, we got temporary quarters in a restaurant, and were very glad to get out of the village as soon as possible. At night we stayed at a small mountain village

called Kuan Shang, and had another very bad time. The kang was not made so that a fire could be built underneath it, and we were bitterly cold. There was no coal, and after a great deal of trouble enough charcoal was found to light the kitchen fire. There was no food, except some very coarse cakes and a little meal, so we had to fall back upon our slender stock of foreign groceries, which we carried in case of emergencies. The innkeeper, however, was a very decent man, and did his best for us, and he introduced the village school teacher, who knew something about geography, and who had read about London and its wonders. They informed us that Mr. and Mrs. Lawson, of the China Inland Mission, lived only about ten miles away, and as Mr. Nyström was already acquainted with them we sent on a note saying that we would call on them the next morning as we passed. A mission station in China is, in my mind, like an oasis in the desert.

After several days of travelling in a land where self is a great abiding interest, and public spirit seems to be unknown, one gets weary and sick at heart, and the fact that life has its happier and nobler side is apt to be forgotten. After such thoughts how inspiring it is to enter a mission compound and to notice how bright and clean everything is, and to receive a kindly welcome from the missionaries, who, although fully occupied with their work, are not too busy to invite the passing stranger in and to entertain him with the best that they have. This mission station is called Yü Li Kou, and is several days distant from any other. Mr. and Mrs. Lawson are assisted in their work by Mr. Cooper, and it was a great pleasure to hear them speak of their work and of the change which was coming over the people. In 1900 the station was destroyed, and Mr. Cooper had only escaped after much suffering, and during the flight several members of his family succumbed to illness and fatigue. Mr. Lawson, on the other hand, had a singularly fortunate escape. Mrs. Lawson at this time was in Shanghai, and being taken seriously ill a telegram was sent to Mr. Lawson, and delivered by special messenger from the nearest telegraph station. He at once set out for Tientsin, and, travelling night and day, he reached Paotingfu in time to catch the last train which went through before the railway was torn up. Education formed no small part of the mission work, and we were delighted to meet an old lady who, by her needlework, earned sufficient to enable her to teach in the school without taking any salary. Mr. Lawson also has an opium refuge, though he said that he had not many patients in because the harvest had been a good one, and so money was plentiful; it was only when money was scarce that people wanted to break off opium. He, however, said that a few days ago he had a visit from a man whom he formerly knew, and who wanted to break off opium. When the man was gone he learnt that, in order to buy the long coat which he wore during the visit, he had sold his only son, a lad of about 12 years, for a few dollars, as all his other clothes had been sold to buy opium. After a hearty lunch we bade good-bye to these kind friends, and stayed the night at a small dilapidated city called Chang Tse Hsien.

Next day we had a ride in the plain, and came to another Hsien city called Koa Ping Hsien, and on the hills opposite I counted over

a dozen temples. Had we had time we should have paid a visit to some famous ironworks at a place called Lu Ngan Fu, which was about twenty miles distant, but as we were pressed for time we determined to go on next day to Tsê Chou Fu, from which place we hoped to cross over into Honan.

During the night the fumes from the kang fire got out into the room, and in the morning both of us had very bad headaches, and Mr. Nyström was quite dizzy. It was not until midday that we got over the effects, and we were very thankful that nothing worse had happened. On the road we passed a very small and primitive iron foundry, and I am glad to say we managed to get a good photo of the place.

We found Tsê Chou Fu to lie right at the foot of the mountains, and it is the finest city that I have seen in Shansi. The streets were full of people, and there was an air of prosperity in the place which was in striking contrast to the country through which we had passed.



PRIMITIVE IRON FOUNDRY IN HONAN.

We found a very good inn, and then sent on a note to Mr. Stanley Smith, a well-known Chinese missionary, who had lately settled in the place, saying that we would call on him shortly. We found that he had that very day moved into new premises, which were being built on the site of what was formerly three large camel inns, though nothing except the dwelling-houses had been completed at that time. Mr. Smith was one of the seven Cambridge men who came out to China many years ago, and another of them was Mr. C. T. Studd, the famous cricketer. He is the first missionary to settle definitely in Tsê Chou Fu, and Mrs. Smith is the first foreign lady who has lived there. They said that they had been very well received by the officials and people, and the future prospects seemed very bright.

Tsê Chou Fu is in the centre of a magnificent coalfield, and Mr. Smith assured us that coal of the finest quality was to be found right on the surface, and that delivered at the door it did not cost more than four or five shillings a ton. The only difficulty was that the city is

shut off from communication with the sea by a very large chain of mountains, and unless a railway could be made to the place there was not much hope of improvement. The Peking Syndicate have a railway running on the other side of the mountains by which they can carry minerals to the Wei River and then to the coast, but, unfortunately, the best mines are near Tsê Chou Fu, and one sincerely hopes that they will brave the difficulties of the road and bring their railway to Tsê Chou Fu.

I may mention here that I heard nothing but praise for the way in which the engineers, both of the Syndicate and of Messrs. S. Pearson and Co., the contractors, have treated the natives, and it is frequently said by the Chinese that they compare very favourably with the foreigners employed on the Peking-Hankow Railway. There, however, seems to be something wanting in the management of the Syndicate, and, as it was well said, at present their railway begins nowhere and ends nowhere, while the Wei River, on which they rely so much for the carriage of their goods, is frozen one half of the year and as often as not is dried up during the other half. One hopes that things may improve before long, and that the patient shareholders may at last receive some interest on their money.

At Tsê Chou Fu we began to see traces of the products of Southern China which had come over the mountains from Honan, for during our long journey we had not seen a boat or a bamboo, while rice fields and tea trees were absolutely unknown; and, in fact, North China is quite different from the China of the imagination, as for some reason or other the China everyone knows about is in reality Southern China.

We made a late start the next morning, and we found that the road was exceedingly difficult to traverse, as it went right over the mountains and was paved with huge cobble stones which had been worn smooth and were exceedingly slippery to walk upon. We met great numbers of men carrying loads on bamboo poles, and we thought how a railway would change all this. So difficult did the road prove that we did not reach our destination until after nine o'clock at night, and we had a terrible journey in the darkness.

The next morning we were up fairly early, and at noon went through the gateway in the wall which separates Shansi from Honan. As we descended the air became warmer, and shortly afterwards we were galloping across the Honan plain, and the contrast was very great. For ten days we had been travelling among the mountains, never losing sight of them for half an hour, and then suddenly we came upon the most perfect plain I have ever seen. The whole country was as level as a billiard table, and there was not a hill or a mound in sight, and the only breaks in the landscape came from groves of bamboos, which, however, looked dull and dreary in their winter dress. Before very long we came to the large and important city of Huai Ching Fu, which stands on the bank of the Ching River.

As our permit for the use of post horses did not extend beyond Shansi, and our mules had also been engaged to this place, it was necessary to make fresh arrangements before we could go on further. While in the inn we had a visit from Dr. Maclure and Mr. Slimmon, of the Canadian Mission, and Mr. Slimmon kindly sent his card with ours to the Yamen to ask if we could use the official post horses until

we reached the railway. The reply came back that not only would horses be provided, but if we wished we could have carts instead, and that anything else we wanted would be at once supplied. We gladly accepted the offer of carts, as they would carry our servants as well as the baggage, and we were somewhat at a loss to explain why we should meet with such kind treatment in another province. We learnt afterwards that the Governor of Shansi had actually taken the trouble to wire to the Governor of Honan asking him to treat us as his guests while in Honan, and that, all unknown to us, preparations were being made for us as we went along. Such wonderful courtesy and consideration is but an example of what is often done in China for foreigners who have any claim to be treated as guests, and the pity of the thing is that such hospitality is so often abused by the recipients, who are apt to consider that it is their right rather than their privilege to be treated in such a manner. All our thoughts now were about the Yellow River, or the Huang Ho as the Chinese call it, the crossing of which we had looked forward to with great expectations. It is the custom of the Chinese Government to send offerings to the spirits which control the Yellow River, and if I were at all inclined to believe in such things I should certainly admit the presence of some evil influence in that district. There is a feeling of uncanniness pervading the whole air; the rich loam of the plain changes into hard, gritty, desert sand; walls and embankments rise up on every side, and the villages are few and far between. "Where is the river?" we asked. "Oh! it is over twenty miles away," was the reply, and yet we felt that it must be just beyond the huge embankment we saw in front of us.

That night we stayed at Wu Chih Hsien, a city which was defended by a gigantic embankment in addition to the usual stone wall, though in the eighteenth year of Kuang Hsü the water had overtopped the walls and entered the city.

Next day we started off for the river, and it was soon evident that we were getting nearer, for the villages disappeared, and nothing but a few wretched huts were left. Such is the struggle for existence that even here people were to be found tilling the miserable soil for the sake of the food it might bring them. Sooner or later the mighty river would come upon them, and they would be swallowed up in its torrent, but they took the risk, for they must live somehow. At last even the huts disappeared, and the ground was covered with the loam left by the last year's flood, and nothing would grow there. Then came the river, a mighty, restless stream of yellow, muddy water, stretching away as far as the eye can see, full of sandbanks and currents, at one place moving slowly and sluggishly, and at another place rushing along like a mountain torrent. A mighty river, but where are the towns which ought to be standing on its banks, and where are the steamers which ought to be going up and down? Alas! the only signs of human habitations are the huts of the ferryman, and the only vessels the huge flat ferryboats. Nature has made a huge, irreparable blunder. North China parched and dry, almost like a desert, longs for some great peaceful waterway; but, alas! this is denied her, and the one river of any size which she possesses is like a parasite slowly sapping her strength.

Very soon we were all on board one of the ferry boats, and a diversion was caused by a mule falling into the water. When it had been safely landed the boatmen pushed off, and we slowly drifted across, shaping our course to suit the numerous currents, the boatmen at times having to use all their strength to prevent us being carried too far down stream. In the distance were a few small sailing boats making their way down stream, and it was impossible not to admire the skilful way in which they were handled. Further down in Shantung we were told the river becomes very much broader, until it seems like a sea, and the river bed is so filled up with sand that the water is higher than the surrounding country, and has to be kept in bounds by means of earthworks. Sometimes the water breaks through these barriers and rushes over the land, sweeping everything before it. We asked if nothing could be done to prevent this, and the answer was that some foreigners had once told the Emperor that the only remedy



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was to dig an immense lake at that part where the river was the swiftest, and by this means the torrents which rushed down during the rainy season could be controlled. However, the Emperor had not enough money to pay for this, and things were the same as before. The railway bridge was to be built at this place, but they did not believe that it would stand very long; the distance was so great, and the water would eat away the sand round the pillars.

That night we stopped at a miserable Hsien city called Ssu Shui Hsien, and as the inns were very bad the magistrate, who was away from home, had left word that we were to be given quarters in the Yamen, and for this we were very thankful.

The next day, about 10 o'clock in the morning, we came upon the earthworks of the railway, and were told that the lines were laid as far as Hsü Chou, a place about 25 miles away. It was evident that we were approaching civilisation, for we next met three Japanese gentlemen in carts, and then a foreigner strolling along the road, and after that we saw an Indian gentleman riding along on a donkey.

It was very hard travelling, as the great flood of twelve years ago had brought down immense quantities of sand, and the horses moved very slowly. To make matters worse the road was closed in by loess walls, and often for half a mile there was no opening for two carts to pass one another, and if they met in the middle there was no help for it except for one to go back. In spite of great care we found ourselves face to face with a cart filled with iron pillars, destined for the bridge over the Yellow River, and it was only after much delay that we managed to pass. A very little work on the part of the authorities would have made it possible for carts to pass one another all along the road, but even on this, the great highway between Hankow and Peking, matters of public interest were utterly neglected. We did not get into Hsü Chou until about 8 o'clock in the evening, and then we decided to call upon the engineers of the railway, and learn from them how matters were progressing. We accordingly went to the temple where they were staying, and were very kindly received by Messrs. Schloss and Cardinal, who are Belgians, and by M. Cochoi, a French gentleman. As they all spoke English we were soon engaged in a very pleasant conversation, and the result was that we not only accepted their kind invitation to dinner, but also accepted their hospitality for the night. Messrs. Schloss and Cardinal were engineers, and Mr. Schloss had helped to build railways in almost every part of the world. He had made a special study of the Yellow River, and said that the pillars of the bridge were to be large iron screws sunk deeply into the sand, and that there were to be six hundred pillars in all. The contract for the bridge had been given to an Italian firm, and as they hoped to be able to put down two pillars a day, the whole bridge was expected to be ready in about two years time. They hoped that both ends of the railway would be laid as far as the river in six months from that time, and the great bridge was the only thing which would delay the completion of the whole line. When we asked how many labourers they had working on the line the three gentlemen held their arms up in despair, and shrugged their shoulders in true Continental fashion. All the work was done by contract, and we were surprised to hear that the workmen were only paid 80 cash a day, or a little more than twopence, as in Shansi the wages are on a much higher scale. M. Cochoi, who was the secretary of that part of the line, said that the line was to be under foreign management for thirty years, and at the end of that time it was to be given over to the Chinese on the condition that they could repay the money which had been spent on it. All the rails were made in the ironworks established by the Viceroy, Chang Chih Tuang, at Hankow, and M. Cochoi further made us his debtors by giving us a letter of introduction to the foreign manager of the works, M. Dyckman, who was a Frenchman, and a friend of his. The Chinese management of the line consisted of the appointment of certain officials, who, although they had very little actual work to do, yet managed somehow or other to grow rich in a very short time. In addition to this five thousand taels were sent every month to the office of the Chinese Railway administration in Shanghai. We were told that there would be a construction train going the next day as far as Yien Chêng, which was about 30 miles away, and that we ought to be in Hankow in three days' time.

Accordingly the next day we went to meet the train, which brought a tremendous load of sleepers (not Chinese officials, but wooden sleepers) and rails. After much delay these were discharged, and we accepted the kind invitation of the engine driver to share his car. He was a Greek, who had been educated at a Scotch Mission School in Smyrna. He spoke English very well, and informed us that he spent much of his spare time in reading English books. The engine drivers were generally Chinamen, but as the line had been newly laid a foreigner took charge of the engine at certain parts of the journey. At the various stopping places certain French and Belgian gentlemen came in to have a chat, but it was soon evident that Englishmen were not in great favour, and they seemed ignorant of the fact that Sweden is not a part of England, for Mr. Nyström was treated in the same fashion as myself, and he told me that it was no unusual experience for him, as when he mentioned to Frenchmen that he was a Swede he



LAYING THE RAILS OF THE PEKING-HANKOW RAILWAY.

was usually favoured with a vacant stare, and he is of opinion that the Manchester Geographical Society ought to send missionaries to France. It has always been our ideal out here to try and do away with racial feelings and animosities as much as possible, and all Europeans in the East ought certainly to remember that they are strangers in a strange land, and that their conduct to one another is closely watched and commented on by the Chinese. On the Peking-Hankow line, however, the general policy seems to be one of direct antagonism to the English, and this is displayed not only in general principles but also in the way individual Englishmen are treated, and our experience seems to be similar to that of the majority of our countrymen who have travelled on the line. We were informed that no Chinese stationmaster was engaged if it was known that he spoke English, and it is next to useless to ask for any favour or convenience. In saying this I should like to acknowledge the kindness which we received at the hands of Messrs. Schloss, Cardinal, and Cochoi, but

they were exceptions to the general rule, and I only wish that their example would be followed by the others.

When we arrived at Yien Chêng it was quite dark, and we found that the city was over three miles away. Mr. Nyström, who is a fluent French speaker, asked several of the foreigners who were about if there was any place where we could stay for the night, but they one and all refused to answer, and as it was too late to get a cart to the city we were left stranded on the platform. Our good friend the engine driver, however, offered to share his dinner with us, and we accepted on the condition that we would be allowed to contribute our share of the food. After this we got our luggage carried into the station, and slept all night on the bare floor.

In the morning we had to wait for our breakfasts while the boy went into the city to buy a few provisions, and during the interval we were informed by our friend the engine driver that it was not certain whether there would be a construction train that day or not, but that he would telephone to the next station and try to find out. Unfortunately, he could get no answer, and we were left in fear and trembling lest we should be condemned to stay there another day. We then went to the Chinese station master, and asked him if he knew whether there would be a construction train that day or not. We might as well have asked an image in the temple. He was a perfect example of that stupid insolence and overweening conceit which are often to be found in Chinamen who are associated with foreigners, who not only do not know their language and customs, but also fail to make them respect and obey them. Failing to get anything from him, all we could do was to sit down and wait. We then got a slight insight into the way in which things are managed, or, shall I say, mismanaged on the Peking-Hankow line. First an excited Frenchman would come in and turn the handle of the telephone as though there was a fire in the place and he was ringing for the fire engine. He generally got no answer, or if he did it always seemed to be from the wrong place. He would shout for the station master, and that weak, insipid individual would come slowly forward and listen with perfect indifference to the excited Frenchman's harangue. This scene was gone through quite half a dozen times, but nothing seemed to be done. At last word came that there would be a train that day, and we spent some time watching the foreign engineers and station masters giving their instructions to the Chinese subordinates. They spoke at an exceedingly rapid rate, and though, as a rule, their hearers only understood their meaning here and there, yet by means of gesticulations and countless repetitions the real meaning was generally understood in the end, though when such is the method that prevails one is not surprised that the railway is not the success that it ought to be. At this point we made the acquaintance of a Chinese General, who was going down to Hankow in order to have an interview with the Viceroy of the Hunan-Hupeh provinces. As war between Russia and Japan seemed certain, and had, in fact, started, though we had not heard of it, our conversation naturally turned to the position of China. He proved very outspoken, and said that while the Chinese soldiers were not afraid to die, yet they could do nothing because of the impotence of the officials, who not only squeezed

money but also smoked opium and indulged themselves in every way. He also declared that the rifles were so badly made that the soldiers were afraid to use them, while the supply of cartridges would give out after a week of actual warfare. Amongst other things he told us of a Taotai who, having gained a smattering of Western science, was placed in charge of the arsenal in Hankow, and who, in spite of the warnings of the foreign expert, meddled with some dynamite, with unexpected results to himself. I should also mention that a French gentleman employed on the railway asked us into his room to have a cup of coffee, and he apologised for not being able to entertain us as he had to go up the line on business. We felt very grateful to him for his act of kindness, which made the rudeness of some of the other foreigners seem worse than ever.

About one o'clock the train came in, and we were placed in a dilemma by the fact that our friend, the Chinese General, had just partaken of a feast sent to him by the official of the place, and, for-



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getting all his good resolutions, he was in a state of semi-intoxication, and behaved in such a manner that we were compelled to make him seek another car.

That evening we arrived at Si Ma Tien, which was 200 miles from Hankow, and where we hoped to get a train the next day which would take us to that place. We first went into the town, and had a meal at a Chinese restaurant, and then prepared to spend the night in the train, as we were afraid we might not be in time the next morning if we slept in an inn. Our first bother was with the tickets; they had to be bought with Hupeh dollars, and here we were in Honan, 200 miles from Hupeh, and in spite of every effort we could not get the dollars we wanted. There were a few to be had at a very exorbitant rate, but they were not enough for our purpose. We carried piles of silver which, with copper cash, form the standard money of the country. To our surprise we found that this would not do, and that there was no place in the station where money could be exchanged. We appealed to the station master and to the man in

the ticket office, but all was in vain, and when we asked as a favour if they would change the money for us they refused, in spite of the fact that we offered to give considerably more than the rate of exchange. Frenchmen, we were told, generally travelled without tickets, but the English are not allowed to do so. Our only plan, therefore, was to travel without tickets, and pay when we got to the head office at Hankow, where, of course, they would have a place for changing money. We managed to get enough money to buy a ticket for our servant, but to our disgust he could not get one, as they only took dollar pieces, and cents would not do. The reason of this is that at the coast eleven 10 cent pieces can be got for a dollar, and though the railway accept from their clerks ten 10 cent pieces to the dollar, the clerks make the suffering public pay in dollars, which they change, and gain 10 cents on every dollar changed. This is but one of the ways in which the subordinates on the railway fleece the public, and so daring have they become that they often try their tricks upon the foreigner. We went into the train to select a sleeping saloon, and were told by the French conductor that there was only one room which could be used, and that was taken up by his friends, whom we saw playing cards and drinking absinthe, and afterwards they intended to sleep there. We accordingly went out to look for other quarters, and had decided that we must sleep in the second-class compartment when we found that the sleeping car had two vacant places, and apparently some of the French gentlemen had decided to sleep elsewhere. Accordingly we took the two empty places, and were just going to sleep when we were roused by a man calling out, "This place belongs my," and, looking up, saw one of the men we had previously seen in the room in a terrible rage, and much the worse for drink. At first we refused to move, and in spite of his threats we said that we had just as much right to the place as he had. He then brought a Chinese interpreter, who said that he was the conductor of the train, and that it would be better if we got out. All this time the man's rage was increasing, and we prolonged the agony by talking to the interpreter and telling him what we thought of the man in question. We found, however, there was another sleeping car, which was occupied by the General, who had now recovered from his debauch. The only event of the night was our waking up and finding the General playing with my loaded Winchester rifle, which he had unknowingly cocked, and we just prevented him firing.

The next day we got away about 7 o'clock in the morning, and hoped to reach Hankow about 7 p.m. For the most part the journey was along the plain, but about noon we got amongst the mountains, and the scenery was very fine. We had a breakdown just about this time, and were delayed for over an hour. The track was along a river bed, and there was only one short tunnel, the only one as far as I know of on the line. We then got into the plain again, and went slowly along, not getting into Hankow until 10 o'clock. We then offered to pay for our tickets, but as they could not change our taels into dollars we left the silver as a deposit, and promised to redeem it on Monday, for it was Saturday night, and, of course, the banks would not be open on Sunday. We were very glad to find ourselves safely in the Astor House Hotel, and amongst Anglo-Saxons once more.

Next morning we got up and had our first sight of the Yangtse-kiang, and strolled along the Bund. We might well say what a river, and how different from the Yellow River. The one is a roaring, restless torrent, the other is a grand majestic river, and nature seems to have atoned for her mistake in the one by the wonderful care which she has bestowed upon the other. We saw before us a magnificent stretch of water over a mile in width, full of ships passing to and fro, while far away on the other side was the great city of Wu Chang, and to the west of Hankow. At the other side of the river Han was another great commercial centre, the city of Han Yang.

Hankow, which means the mouth of the Han River, is situated at the east bank of the Han River, at the point where it joins the Yangtse. The river is crowded with ships, some of them large ocean steamers, and it is hard to realise that one is still 600 miles from the coast. The three cities—Wu Chang, Han Yang, and Hankow—have an enormous population, and may truly be said to be the heart of China. Hankow is great now, but she is destined to be greater in the near future.

The British Concession faces the River Yangtse, and the Bund is a magnificent roadway. The other nations have now got their concessions, and the French and Russians have also very good river frontages, while the Germans are busily preparing for the future. The native city has extremely narrow streets, in which countless crowds jostle each other the whole day long, and thousands of small boats are constantly going up and down the numerous waterways which connect Hankow with half the cities of Central China.

We had at last reached the China we read about in books, and we had almost forgotten the ignorant, slow-witted peasant who snatches a bare sustenance from the parched loess plain of North China.

While in the hotel that night we made the acquaintance of a Chinese gentleman, who was extremely delighted when we spoke to him in Chinese, for though he frequently stayed at the hotel he could not converse with many of the other guests, as he could not speak English. We found him to be a very intelligent man, and when he learnt that we had come from Tai Yuan fu he said that the day was a very lucky one for him, as he himself had spent several years at that place, and we had many mutual acquaintances. We found out that he had been an official in Shansi, and had gained the favour of the Empress Dowager when she was running away to Hsi Nan Fu in 1900. As a result of this he was made a Taotai, and given the very rich post of salt Taotai at Hankow, and, as he confessed, he could not help making money. He had known our friend the Rev. Mr. Morgan years ago, and he said that while he had not joined the Christian Church he had yet been very much influenced by Christianity. He pressed us to go to his house, and he promised us a good feast, but as we had decided to sail for Shanghai on the next afternoon, and to spend the morning at the Han Yang Ironworks, we were compelled to decline his kind invitation, and parted with many expressions of mutual good will.

The next morning we got our money out of the bank, and went and paid the railway people the money we owed them, and then got a native boat and sailed up the river to the Han Yang Ironworks.

Thanks to our letter of introduction from Monsieur Cocochai we received a very friendly welcome from Monsieur Dyckmann, who at once offered to show us round the works, though they were closed on account of the New Year holidays. We, however, saw the huge Bessemer furnaces and the whole of the machinery used for the manufacture of the iron rails, and we were informed that when in full working order over two hundred rails a day were sent out. The iron and coal used was almost all obtained from the neighbourhood, though, of course, the machinery came from abroad, and though it was chiefly of French and Belgian manufacture I noticed that Craven Bros., Manchester, were represented by a machine for punching holes for rivets. We could not get through the arsenal without special permission, so we hurried back to Hankow, and went on board the steamer for Shanghai. Strange to say, our fellow passengers included three Russians and two Japanese, but the former said very little, and we did not know their nationality until they left us at Kiukiang the next morning.



CARGO BOAT AT WEI-HAI-WEI.

Of the journey down the Yangtse I will not say much, except that I was much disappointed with the scenery, which for the most part consisted of flat mud banks, though here and there we found something to admire. Perhaps our long journey through the mountains of Shansi with their splendid scenery prevented us from giving full justice to the beauty of the hills we saw along the banks of the Yangtse. Owing to the fact that the Chinese New Year holidays were in full force we only stayed a very short time at each of the ports, and we did not even get a run on shore at Nanking, so that our journey was very uneventful, and it was not until we got to Woosung and saw the Japanese cruiser waiting at the mouth of the river for the Russian gunboat *Manjour*, which was hiding at Shanghai, that we got at all excited, and felt that we were really in the world again.

We had a delightful trip to Ningpo, and then went up north again to Tientsin. Just outside Wei Hai Wei we were stopped by two large Japanese cruisers, who let us sail away after making a few inquiries.

In Chefoo we saw the Haimun, the ship engaged by the *Times* correspondent in order to get news of the rival fleets, and we felt then that we were within the danger zone. However, we met with



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no floating mines, and in due time got to Yaku, where we went on shore and took train for Tientsin.

In a few days we started again for Tai Yuan fu, and after an uneventful journey down the north branch of the railway we crossed over the mountains once again, and were very well satisfied to rest after our journey of nearly three thousand miles.

A HISTORICAL ATLAS OF MODERN EUROPE. Edited by R. L. Poole, M.A., Fellow of Magdalen College, Oxford. £2 12s. 6d. Oxford: Clarendon Press.

HISTORICAL GEOGRAPHY is a science that is at present much misunderstood. It seems to be pretty generally taken to be the illustration of political events, in chronological order, by small scale maps, politically coloured, and having no sort of representation of land surface features. Sometimes there is a descriptive text; sometimes the maps are left to explain themselves. In nearly every case the topographical detail is more suited to political than historical requirements. Places that have no historical interest are relentlessly crammed on the sheet, and spots of vital historic moment are ignored.

There is a higher and more scientific historical geography than this. Historical Geography is a part of human geography, and all classes of human geography treat of "the interaction of man with his terrestrial environment." "The old geography," says one writer, "answered the question, Where?" That is all that any historical atlas we have yet seen attempts to do. But why there? Why did Cromwell and the Scots meet at Preston and Warrington; why does the Rhine bristle with fortresses and the Vistula not? Why has Belgium been such a scene of carnage in bygone years, and why is Northumberland, and not, say, Cumberland, so

stained with the blood of the slain? The answer is in the configuration of these regions; and a historical atlas that pays no attention to physical conditions leaves out the most scientific and educational aspect of human geography.

The "Atlas" before us is by far the best thing of its kind that we possess in England, as far as the older Historical Geography is concerned. It is an altogether admirable epitome of British and Continental history from the earliest times, illustrated by maps—an enormous number of them—of inferior workmanship. Each part of the history is treated by an expert. Among a galaxy of names well known to students and experts we note B. Nisbet Bain—Hungary, Poland, etc.; Professor Tait, Professor Bury, Dr. Stanley Lane-Poole—Western Asia; Hugh E. Egerton—European Colonies; Deputy-Professor Oman, Dr. G. W. Prothero, Professor Tout, and that brilliant and rising Scottish scholar, Mr. R. S. Rait.

The arrangement of subjects is simple enough. The Roman Empire, 285-395, is followed by a series of maps of Europe from 395 to 1897. Several maps of England succeed these, and a few of Scotland and Ireland, which important countries are, we think, somewhat scurvily treated. Two maps of the Turkish Dominions, several of "Germany" and Prussia; two of Poland, with very illuminating insets illustrative of the partitions; one only of Russia, 1613-1878, and an adequate number of the rest of the European States. Western Asia is rightly recognised as worthy of detailed attention and the Atlas closes with a series of maps of European Colonies, not omitting "South Africa previous to the suppression of the Boer Republics." There are several maps illustrative of what is termed "Ecclesiastical Geography," by which we suppose is meant ecclesiastical topography, which are very interesting and of great value to students of ecclesiastical history.

The explanatory chapters are, as we have already said, admirable. They are adequate in scope and masterly in execution. The maps, however, show some extraordinary features. Some are humorous. Map II. reveals an amount of enterprise on the part of the barbarian immigrants that is truly amazing. The Vandals apparently crossed the Rhine, the Meuse, the Seine, the Loire, and the Garonne, and then astonished Spain by pouring into the country across the top of Maladetta—a feat which rivals Hannibal's crossing of the Alps. They also seem to have traversed the Alps in an equally airy fashion. In very few instances do the political boundaries have any reference to physical features. Occasionally we see a river dividing territory from territory; mountain ranges tell us nothing. The colouring has been relentlessly superimposed upon a species of hill shading which is too flimsy to convey any orographical idea, and which merely adds to the confused nature of the maps. Some of the sheets are marvels of crowding. We have seldom seen such a triumph of unnecessary topographical detail as Plate XLI., unless it be Plate XXXVI. The amount of labour entailed in plotting out the territories of every inconsiderable princelet is not balanced by the educational result attained. How much more would have been gained if the energy devoted to such sheets had been concentrated on a really good contoured map of the Rhine frontier, with special reference to such fortresses as Nancy, Metz, and Strassburg, or of the approaches to Vienna, or of the strategical importance of Milan. What is the Patriarchate of Aquileia, historically, beside the Belgian frontier? Some of these political maps are very necessary. Plate XLIII., which is rather less poor in execution than most of the others, illustrates most lucidly the formation of the modern German Empire, for instance.

But enough has been said to illustrate our point. Some maps bear the indisputable stamp of being old ones served up anew. A "historical" map of the Netherlands with canals marked—some of them far too modern to be entitled to a place—and no roads indicated, is not worthy of the name "historical." The "Atlas," then, is hardly an Atlas: it is a chronological political summary, a history, illustrated by maps of a sort. At present we have no orographical historical geography save George Adam Smith's magnificent book on the Holy Land. We need more works of this kind, and far less of a kind which is, surely, we hope, soon to pass out of date.

ERNEST W. DANN.

THE NATIONAL ANTARCTIC EXPEDITION.*

Lecture by Captain R. F. Scott, R.N., Nov. 30th, 1904.

CAPTAIN SCOTT, R.N., commander of the "Discovery," delivered a lecture at the Free Trade Hall, Manchester, on Wednesday evening, November 30th, 1904, and received a very hearty welcome from the immense audience. The Lord Mayor (Mr. T. T. Shann) presided, and before the lecture the explorer was presented with an address from the Athenæum by Dr. Hopkinson, Vice-Chancellor of the Manchester University.

Captain Scott said that he had had the privilege now of lecturing in several towns, but he could honestly say that in no other town had he received such a warm welcome and been so magnificently treated as in Manchester. He was entertained most hospitably by the Lord Mayor; he had the privilege of seeing that great institution the Athenæum; and he had also had invitations from the Manchester Geographical Society, which unfortunately he was unable to accept; but a disadvantage of Manchester was that there are in the city so many institutions that are alive that one could not accept the invitations of all of them. He was a very poor hand at returning thanks or doing anything in the way of making a speech, and he would like to return his thanks by giving the meeting as good an idea as he could of the doings in the Antarctic of the "Discovery" and its crew, of the incidents of their expedition, and of how they lived during the three years of their absence. He would, therefore, at once proceed to his lecture, but before beginning his story would like to call attention to some of the objects for which the Antarctic expedition went to the south.

The distribution of land and water in the Antarctic regions was very little known at the end of the last century, and, in fact, is very little known now, and it was felt that the time had come when some further light should be thrown on this subject. With this view several expeditions went to the south, and one of those was the British expedition. For the purpose of exploration the Antarctic circle was divided into four quadrants, of which the Ross quadrant was allotted to the British expedition. That quadrant is the lowest shown on the chart, and it was there in 1840 that Sir James Ross got through the pack-ice into the open sea which bears his name; but he was in a sailing ship, and only saw things dimly and in the distance. The main object of their expedition was set forth in their instructions as being to get down into that sea and to find out what lay to the south, to the west, and to the east of what Sir James Ross had seen. There were other objects—scientific objects—and one of the principal of these was magnetism. That was a technical subject which there was not time to explain in a short lecture, but in general terms the magnetic pole was known to be somewhere in the part marked on the chart "Victoria Land," although its exact locality was not known.

* The five illustrations to this paper are reproduced from "The Voyage of the Discovery," by Captain R. F. Scott, R.N., with the approval of the author, by permission of Messrs. Smith Elder & Co.

However, it was hoped that the course of the "Discovery" and observations taken by the expedition would be such that the magnetic pole would be accurately fixed. Then, in addition to these great magnetic interests, there were others; for instance, the geology of that southern land and the meteorology in southern latitudes were practically unknown, and then there were the phases of animal life.

For the purposes of this expedition a special ship (called the "Discovery") was built at Dundee. The "Discovery" was not like the "Fram," which was built on quite different lines. The "Fram" was built specifically to go into the pack-ice in the north and remain there safely; but it was thought that for the south what was wanted was a ship that could push through the ice and find out what was on the other side. The "Discovery" was built on the old English whaler lines, and no better lines could have been chosen that he knew of. In the interior of the "Discovery" there were two small apartments amidships, in one of which the officers, in the other the men, all lived very happily together for three years; and, in Captain Scott's opinion, "no better ship's company, officers and men, ever sailed in a ship out of England."

Captain Scott would not refer to their long voyage to New Zealand, but would start at once with their departure on Christmas Eve from Port Chalmers in New Zealand. They journeyed south, and in the early part of the New Year—January, 1902—as they came to the Antarctic circle they met the pack-ice. (Captain Scott showed on the screen several illustrations, one of the pack-ice on its northern edge quite loose and rapidly becoming decayed by the sun, the next of a much thicker pack which they shortly afterwards entered, and another view showing the pack-ice from aloft.) After about four days in this pack-ice they saw to the south the very welcome sight of the open sea, with the southern ice quite close together and more difficult to push through, but after about three days they got through it into the open sea. In addition to the pack-ice there was in these seas a different form of ice, which was dangerous to navigation—the icebergs, the long tabular icebergs that were never seen in the north. The sea constantly washing against the bergs made caves or caverns in them which were very beautiful.

At length they drew near to the coast of Victoria Land and towards Cape Adare. Contrary to what might be generally expected, the coast line from Cape Adare to the south was not entirely covered with snow, but there was a great deal of bare land. The mountains were very high, stretching almost into the clouds, and from them great glaciers came down. Along the coast line there were high mountains in the background and great ice-floes in the foreground, and it was at such a spot that the first "record" of the expedition was left. When an expedition went into those unknown regions it was necessary to leave records, so that people following might pick them up and know which way the expedition had gone. The "Discovery" sailed on till they came to an island, under which they sheltered from a very heavy gale of wind, and left their second "record." They passed that night to an inlet on the mainland, about fifteen miles across, where the ship remained. It was a most magnificent evening, quite calm, and a picture thrown on the screen showed the reflections in the water and

in the foreground a number of seals and some of the men. Here some of the party got marooned on some of the loose pieces of ice and were carried out to sea; and it was some time before they could be recovered. They were very unhappy because they had pipes and tobacco, but no matches. At last they succeeded in lighting their pipes with a burning glass under the *midnight* sun.

They passed along to the south until they came to Wood Bay, and a most magnificent mountain called Mount Melbourne, which was a very interesting spot, because to the south of this mountain nothing of the coast line was known, and they were therefore very interested to see what it was like. They found it was from 7,000 to 8,000 feet in height, and on the screen was shown a very typical scene along that coast line, with high mountains at the back very nearly bare, but their foot covered with snow. The picture also showed how difficult it is to land, because the edge of the ice is a very steep cliff, with only a few spots where a landing might be effected.

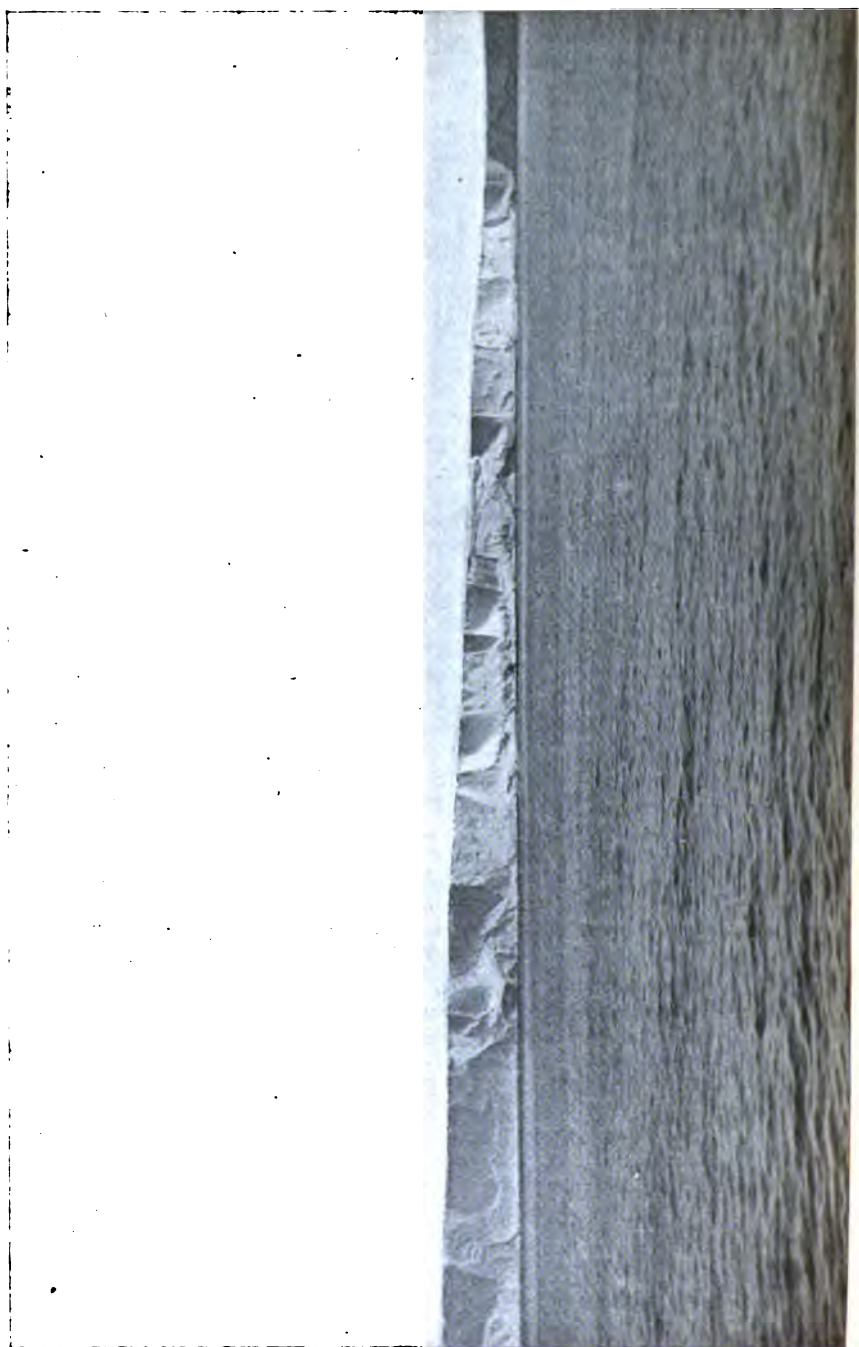
They passed along to the south, and at length entered McMurdo Sound, and here they found such very heavy pack-ice that they were not able to proceed further south. Standing to the eastward, they first passed round an island shown on the chart and then along a long wall of ice for many hundreds of miles. Passing round the north of the island, they came to an isolated volcano about 13,000 feet in height, called Mount Erebus, the only active volcano in these regions. The twin mountain to that was Mount Terror.

Captain Scott here showed on the screen a view of some black rocks, the white spots on the picture being countless penguins, and said that it was an important photograph because it was there where they left their last "record," on which a great deal depended, because it was that record which the relief ship eventually found, and so found the "Discovery."

They went on till they came to the junction of the land with the barrier ice, after which it settled down to a steady and uniform view which went on for mile after mile. The ice wall was from 150 to 200 feet in height above the water and from six to seven times that depth below the water, and it would not take much of a prophet to say that a ship could not get much further to the south than the "Discovery" did in that direction. They were now getting to a very interesting spot, as they were considerably further eastward than had previously been reached, and they knew that the ice wall must come to an end somewhere. It was towards the end of January that they saw the outline of the barrier changed altogether—it now descended to a few feet of the water, and behind it they could see the snow slopes gradually rising. Up to this time they had had very clear weather, but now it became very overcast. It was tantalising, because they knew they were near land, and yet could not see it!

Captain Scott here showed a picture of the sort of thing they saw in that region, an "ice island," but, said the lecturer, undoubtedly it was *land* covered with ice, because the soundings all round were quite shallow, and the peculiar shape also indicated this. "It is rather an annoying way to discover land when you cannot see it."

They then stood on towards a bay (in the early part of February), and in that bay they were completely encompassed in pack-ice, and



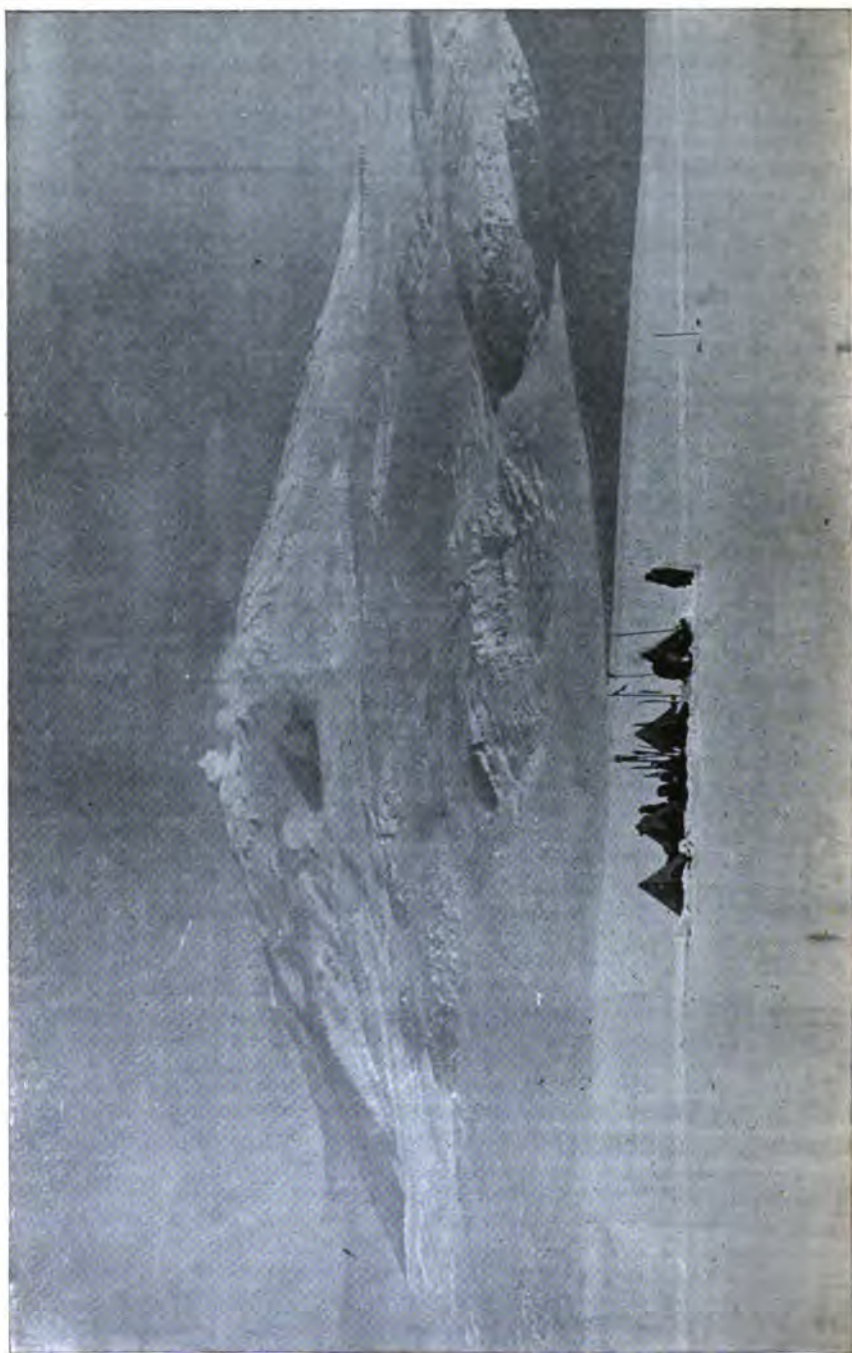
after trying fruitlessly to make their way out, they found that young ice was forming over bare patches of water, which delayed them, and as they knew it would be a dangerous place to winter in, they turned back to McMurdo Sound to winter there. Before returning they had a stroke of luck, as the weather cleared, and they could see that the land ran for miles and miles, and in a few places they could see bare spots. These were small patches bare at the tops of the hills. It was an entirely new land, and therefore they gave it the name of "King Edward VII.'s Land."

They returned as rapidly as possible, but at the east of the barrier, very near to King Edward's Land, they found an inlet where the barrier was much lower, and they were able to land. Their object was to find out what lay to the south of the great wall of ice. So the following day they sent up their balloon, which was secured by means of a strong wire rope. The surface of the barrier ran in long undulations to the south, which was due to the fact of the great ice plain pressing along to King Edward's Land.

They returned along the barrier edge, around Cape Bird, which they reached towards the end of February. They then went to the south, but there they were brought against the ice and were obliged to go to the east, and at last got to the place marked on the chart "Discovery's winter quarters," and there they remained for more than two years. The reason it was a good place to winter in was that their object was to get to the south and to the west, and also to get round to Cape Crozier, where they had left their last record, which they wanted to bring up to date. They seemed to look over a great plain of ice to the south. They thought they would be able to travel down over the barrier, and also that they would be able to get to the west over the mountains. Every spot of land round their winter quarters, and every snow heap, they got to know well, because it was there that they took their walks during the long winter nights. Their view to the north was towards Mount Erebus, and to the west they gazed on another magnificent range of mountains a great number of miles away. The scenery was most magnificent to look at, especially in the spring and autumn, when the sun was low. The high hills were a formidable obstacle to getting across to the westward.

Captain Scott here showed on the screen a view of their little colony in the centre of the scenery just described, and went on to say that the chief hut was called the Royal Terror Theatre for some time; but either owing to the coldness of the stalls or the badness of the fare it soon got to be that very few would stay there. There was the magnetic hut, and the instruments were going the whole time the ship was in winter quarters. There were other magnetic instruments, and also a seismometer for recording earthquake shocks. From this point they made their long sledge journeys, and when their people came back across the ice the little curls of smoke coming from the huts made the place look quite a thriving village and quite homelike as they returned to the ship after their sledge excursions.

One of the most important things was to get round to the record at Cape Crozier. The first sledge party attempting to go there got into very soft snow, and went on for some time until the leader decided to return. It was here that the expedition lost the only man



MOUNT EREBUS FROM THE SOUTH.

lost during the whole voyage. The party had camped for lunch, and in the middle of lunch it came on to blow, and soon the tents were involved in a whirl of drift. They made a rash decision, to leave their tents and make their way back to the ship. In their endeavours to get back they wandered down the slope, and two of the party, by an extraordinary piece of luck, just stopped at the edge. Five, who were left without an officer, started again with the intention of reaching the ship, and they also got to the edge of the cliff, and the first man was horror-stricken to see nothing but a sheer fall into the sea. He shouted to those behind him to stop, but the man in front unfortunately could not do so; he disappeared over the edge of the cliff, and that was the last that was seen of him. The others by great good fortune crossed the rock and got back to the ship. A search party was sent out, and happily picked up the people at the edge of the cliff. They were very badly frost-bitten, and only just saved in time. Now all the party were recovered except two, one the poor fellow that was lost, and the other a man who had gone away to get a warmer pair of boots, but could not find the sledges, and wandered about for some time until he fell down and the snow covered him up. He could remember no more, but after sleeping for 36 hours he awoke and suddenly was seen coming down the hill side. When he was got aboard he appeared to be nothing the worse, only very hungry, and although it was Thursday morning it took a long time to persuade him it was not Wednesday morning.

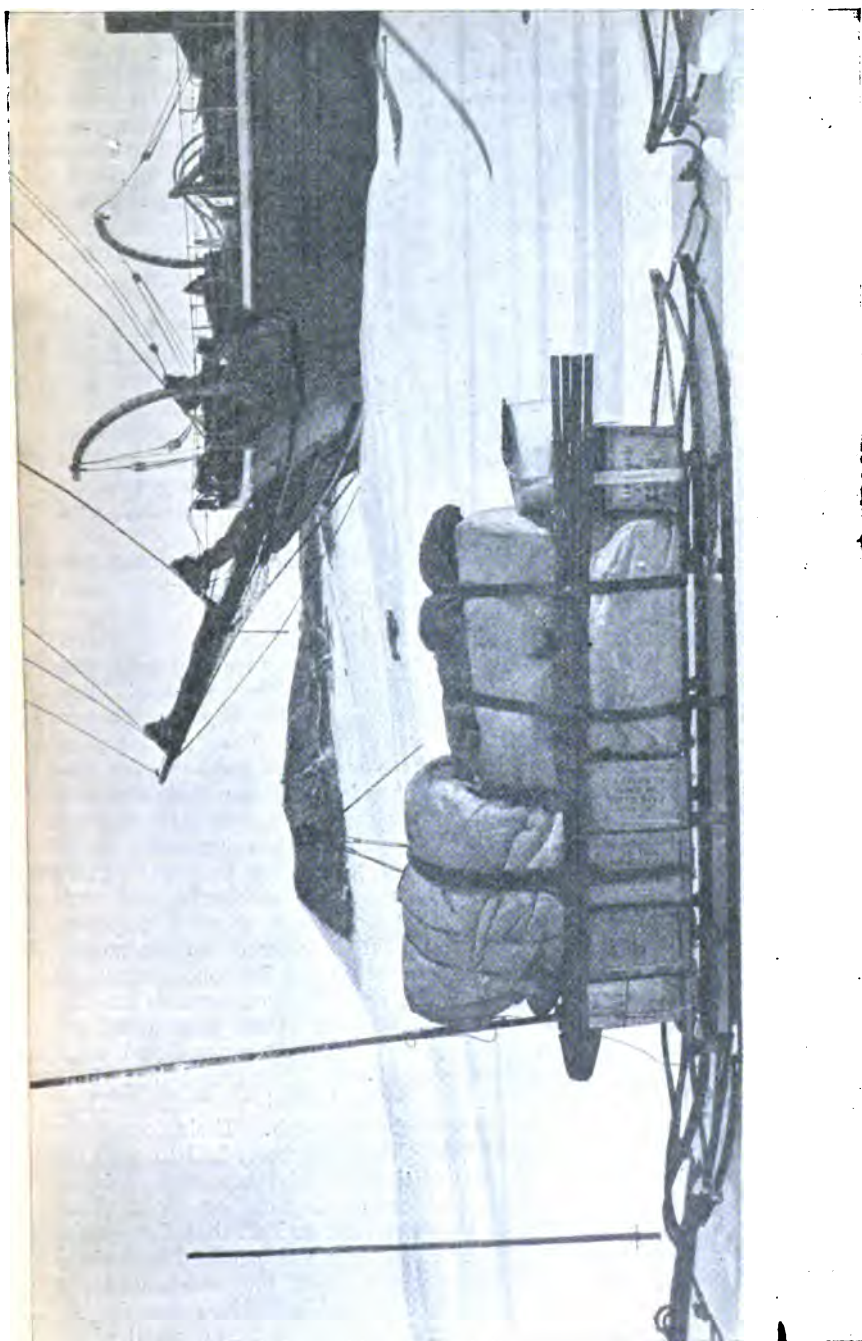
That sledging season came to an end, and the ship was prepared for the winter. Regarding the winter, the sun left them about the 23rd of April and was away until the 21st of August—practically the sun was below the horizon and they did not see it for four months. They got through the winter very comfortably by keeping to strict routine. They used to get up in the morning and do everything precisely as though the sun were with them. The men had breakfast at 8 o'clock; during the forenoon they would work; then they had dinner at 1 p.m.; and after dinner they worked again, unless the work had run out—they never *made* work. After tea at 5 p.m. the men were at liberty to play. The officers had breakfast at 9 o'clock, lunch at 1 o'clock, and dinner at 6 o'clock. Whether dinner was at 1 or at 6 o'clock it was always the same—seal meat. They ticked off the days, which passed rapidly, six working days in each week, and on Sunday no work, but an inspection of the ship and an ordinary service, and on Sunday they had mutton. Some good New Zealand farmers had given them some sheep, which they killed, and which lasted them to be served out about once a week. They always remembered their Sunday by the mutton.

One of the most important things of all to help to get through the winter was to take exercise. Officers and men were always glad to go out for exercise. The walks abroad during the long night were not always uninteresting. The Aurora Australis was a very beautiful sight, as the streamers and arches were always shifting, and there were various tints from very pale green to pale orange and very pale pink. On other occasions when the moon shone brightly the reflections on the snow hills were perfectly fairy-like. It was not always unpleasant by any means. What annoyed them during the winter was the

continuous wind—it was their great trouble. It used to sweep past the ship, carrying the snow drift, and was not only annoying, but was a danger, as it was often very difficult to get back to the ship. On one occasion two of the men were only about 200 yards away from the ship, but it took them about $2\frac{1}{2}$ hours to get back, not knowing where they had been in the mean time, but arriving at the ship very badly frost-bitten, and very glad to get there. Guide ropes were placed round the ship as much as possible. However it might be outside the ship, the inside was always very pleasant even during the worst weather. They had three festivals: (1) The going of the sun; (2) mid-winter; and (3) the coming back of the sun. They had lectures, theatricals, etc.

Captain Scott showed a view of the ship at the end of the winter, about the time the sun was coming back, and said that was a very glad and pleasant time. They used to go on the hills and watch for the first streak of sunlight. And now their work, their sledging work, could begin. They had got as far as the ship could get, and the only way they could get further was on their legs. A sledging party had to be self-supporting, to take with them all their food, clothing, sleeping arrangements, and even fuel. All this makes a considerable weight, but they had to aim at reducing weights to the minimum with the intention of walking the maximum. In the front of a sledge prepared for sledging there is the cooking apparatus containing a small cooking vessel and three pannikins and three spoons, which are never washed out throughout the whole journey. Inside is carried a "primus" lamp for cooking, and at the other end is the oil. The whole of the bottom of the sledge contains food, dry biscuit and pemmican (35 per cent of beef and 65 per cent of lard), pea-soup and sugar, and cocoa and tea. On one day there would be pemmican for supper and pemmican for breakfast, and the next day pemmican for breakfast and pemmican for supper. Their spare clothing had to be carried, generally consisting of a spare pair of socks. The tent poles and the sleeping bag were part of the load. The sleeping bag would hold three people, and they all got inside it together and tried to keep each other warm. There were not many superfluous luxuries carried. As regards clothing, thick woollen garments were worn underneath corduroy trousers and a cardigan jacket, woollen mits on the hands, and very considerable difference in the fashion of head dress. The tent had to go with the sledge, and inside that the party had to live and cook and do everything else.

Captain Scott now showed a photograph of a sledging party starting from the ship, and went on to say that officers and men of their expedition did precisely the same work—all took their share of pulling and other duty. And when they got into a sleeping bag it might be one officer and two men or one man and two officers. When they went on these journeys they had temperatures very often minus 50 degrees and sometimes even minus 60 degrees. They did not, however, feel the actual temperature so much as the fact that they could not dry anything, and as they went on day after day everything about them kept getting heavier and heavier—the helmet got like cast iron, and the sleeping bag got about three times its own weight, due to the condensed moisture and ice. It could be imagined what struggles there were to get into a sleeping bag under those conditions,



SLIDGE PACKED FOR THREE MEN.

and then there was no warmth in it, and they would lie in the bag shivering for about an hour or an hour and a half every night, shivering being of course nature's provision for getting warm, although not helping one to get to sleep. After being in the bag for some time, it begins to melt a little, and small drops come down on your nose, and it is not till morning that the top of that sleeping bag takes the shape of the figures inside, and then it is time to get up. In marching one gets warmer, but with the heavy clothing soon gets tired. The only one single quite comfortable moment in the day is when actually taking a meal, when actually pouring hot soup down one's throat. When summer really comes it is pleasanter, because then the sleeping bags, etc., will dry.

The objects of the expedition now were to get to the south and west, and naturally there was a great deal of enthusiasm on board the ship when he (Captain Scott) and two companions with the dogs started out for the long southern journey. The whole ship's company went with them for a short distance and gave them a send-off, and a party of the men of the ship accompanied them as a sporting party. It was the only journey on which dogs were taken, and they took 22 of them. The dogs lived out of doors, but were very well fed, and were very excellent, willing animals.

With a chart showing their sledging routes and the distances, the lecturer proceeded to say that they left the ship on November 2nd, 1902, and made a bee line to the south. About the middle of November they arrived at a point marked "Depôt A" on the chart, and shortly after leaving there the sporting party were sent back and the three explorers started together to continue the journey. They soon had to pull the sledges themselves, because the dogs, which had been in excellent form, began to get weaker, and it was necessary to take half the sledges on for a distance and then go back for the remaining half, and this of course meant going over the whole distance three times. They finally arrived at a place where they formed their "Depôt B," and he would like to explain that such a depôt cannot be left in the open plain, because it would then never be found again. It had to be put, like Depôt B, where there are landmarks, and such garments as could be spared would be put on a pole to mark the spot.

After leaving Depôt B they continued their march to the south. Here they had to face dangerous fissures in the ice, one danger of which is that they are bridged across, and if anyone stands on the bridge it might let him down like a trap-door. Once they had been marching the night before in mist, and then they camped and went to sleep, and the next morning on awakening they found that their sledges had been left two or three yards behind a crack. They proceeded along a long coast line towards the south. Their dogs were daily getting weaker, and they (the three explorers) had to pull on the sledges themselves, and in addition to this they were getting hungrier. This state of things had been going on for about three weeks (it was about the middle of December), and all that they could do was to take an inadequate supper, get into the bag, and pull their belts a little tighter. On Christmas Day, 1902, they celebrated the occasion by having a double breakfast, a double lunch, and a double supper, and one of the party produced from somewhere a small plum



START OF THE SOUTHERN SUPPORTING PARTY.

pudding about the size of a cricket ball. On the following day they went back to starvation diet once more. Towards the end of January they knew that they had come to the end of their tether, and they were obliged to turn.

Here several slides were shown; one of Dr. Wilson and sledges, others of the party, and several reproducing photographs of the scenery *en route*, including high mountains—some over 15,000 feet high—which had never been seen before. Also a picture of the furthest south land seen so far.

As already said, the dogs had been getting weaker and weaker, and it was necessary to alter their diet. It was thought that the food was the difficulty, and, however much the idea was disliked, the only way in which it could be changed was to feed dog with dog. But change of food did not do the good that was expected, and the dogs got quite spiritless, absolutely done. From this time the three men had to unharness the dogs altogether and to pull the sledges themselves, but the poor animals were so done that they could not even creep along with the sledges, and one by one they dropped behind and had to be killed.

Before turning round on the homeward journey, an unsuccessful effort was made to get some specimens of rocks. The party made their camp and wandered towards the shore, but a great crack and a high wall of ice stopped them, and unfortunately they could not get their specimens.

On the return they found the Dépôt B. On the journey they had suffered a great deal from snow-blindness. Snow-blindness starts by pricking in the eyes, the eyes water a good deal, and at night the pain is agonising. Dr. Wilson had it very badly, and was compelled to have his eyes covered up for a considerable time.

Two of the dogs had been kept as long as possible, in the hope of getting them back to the ship, but Mr. Shackleton broke down and was so extremely ill with hæmorrhage from the lungs and very great difficulty in breathing that he ought to have been in bed, but had to go on day after day. Then it became a question between Mr. Shackleton and the dogs, and of course the dogs had to go, but it was sad work killing those last two. The rest of that journey was extremely monotonous. Dr. Wilson and himself had to draw the sledges, which was very hard work through the snow, but it was a good deal worse for Mr. Shackleton, who under ordinary conditions would have been in bed, but who, hour by hour, day by day, and even week by week, had to plod along by the sledges over an unending sort of snow plain through those wearisome 200 miles. They finally got him to the spot marked on the chart "Dépôt A," and thought themselves very lucky to get there. By this time they were absolutely famished (himself and Dr. Wilson at any rate), and directly they saw some food at the dépôt they made a rush for it. That night, Captain Scott said, he could not stop eating, and the result was he was absolutely stuffed. It was pain, and he could neither sit down nor lie down, but wandered about all night like an unquiet spirit. He did not glory in this, but mentioned it as a warning. Mr. Shackleton had a very bad relapse just then, and they were about 30 or 40 miles from the ship, and it was thought he would not recover,

but fortunately he bucked up, and at last they all three got back, after an absence of 92 days, and found all well.

Captain Scott here gave some description of Mr. Armitage's journey: While Captain Scott and his two companions had been going to the south, Mr. Armitage and a party of men had been going to the west. He ascended to a plateau about 4,000 feet high, and then wanted to get 2,000 feet higher, but when he got to the crest of the hills he found he had gone the wrong way, and had to come down again. They looked over this plateau to the north, and found it descended sharply to the north-west. On one occasion two of the sailors set themselves on the sledges and slid down in the snow 2,000 feet below to "see where they would come to." By getting into this glacier they were able to outflank these hills, so to speak. The party climbed and climbed up this glacier over moderately smooth ice until they reached a height of nearly 9,000 feet. They found there was nothing but a snow plain as far as they could see; and that plain was the interior of Victoria Land, and that party was the first ever to get to the interior of that land.

In the mean time the "Morning" relief ship arrived. The "Morning" had picked up their records, including the one at Cape Crozier, and this enabled her to find where the "Discovery" was. The relief ship brought to the Expedition fifteen months' mails and a lot of luxuries and presents. The "Morning" arrived on the 29th of January, but the month of February was quickly passing and still the ice floes did not decrease very much, and when it got so late that the relief ship was forced to leave, there were still four or five miles of solid ice between the two ships, and the "Discovery" was on the wrong side of that solid pack. There was only one thing for the "Morning" to do, and that was to return, and the "Discovery" was forced to remain for the second winter, which was very much like the first one.

Captain Scott now showed a few slides to indicate the kind of scientific observations taken. There was the meteorological screen with the various instruments, at which screen continuous observations were taken throughout the two years, and during that time not a single record missed being taken.

The next picture was of Mr. Hodgson, the biologist, who used to make holes in the ice and let down his nets to catch fish and whatever other animals he could. Mr. Hodgson used to go away from the ship, and they never knew where he had gone; a blizzard would come on and a search party be sent out, and as soon as the search party had left Mr. Hodgson would arrive smiling. He has, however, rewarded the expedition since by producing a very good collection of animals.

Then a picture was shown of Mr. Bernacchi taking observations with a small instrument called the heliometer.

Towards the end of the winter their seal meat got a little scarce, and they used to transfix seals at holes in the ice. The members of the expedition used to amuse themselves by having "ski" races and football matches.

After showing some interesting snow and ice scenes, the lecturer had the chart again placed on the canvas, and went on to say that during the second winter they had a great deal more experience than

they had the year before, and of course they were very enthusiastic. In many ways they had not been at all sorry that the "Discovery" was forced to remain a second winter, because they knew that a great deal of work remained undone.

When the sledging season of 1903 came round, sledge journeys were made in various directions, but he had not time to describe all. He would just refer to one journey, that of Mr. Royds. Mr. Royds, with a party of five men, went to the south-east, starting on November 10th. They cut the food allowance to the shortest possible amount, and their journey was over an unending snow plain, and on that snow plain they were lost, and nothing to do but plod through the soft snow. A magnetic observer was with them, and the only place where Mr. Royds could take his observations was in the tent, so while he took the observations the others had to wait for their supper and walk round the tent. They travelled 155 miles, and then turned to go back to the ship.

Before passing from the sledging he (Captain Scott) would like to point out what he was able to do towards the west. He tried to get over that great snow plain, and luckily he did. There was often the danger of coming upon crevasses in the glaciers over which the journey was made. The scenes as they went along were rocky. They had got up to about 7,000 or 7,500 feet when they had a snowstorm, and it was just as much as they could do to get into their tents. That storm did not go down for about six days, during which they were practically all the time in the tent and in the sleeping bag. When people have been together in a small sleeping bag for a week they have exhausted all their topics of conversation. Towards the end of this week some of the party were beginning to get rather frost-bitten, and it was decided to make a dash for it. They threw everything into the sledges, and made a dash and got over the summit up to a height of 9,000 feet. They passed on over an unending snow plain, and here the conditions were very severe. The wind blew without stopping, their sleeping bags were frozen up, and the biting wind used to cut their cheeks and lips and nostrils. These wounds would not heal up, but luckily there are no microbes in those districts. At such a time, however, one felt inclined to kill any man who made a joke, for the lightest laugh meant the re-opening of wounds.

The party had now reached a place which was somewhere about the point where the compass pointed the wrong way—south instead of north. Very shortly after that he (Captain Scott) had to send three of the men back. Of course, they had to return eastward, and it was peculiar to have to tell them to steer due west by the compass. There had been really very severe work, and these three who were sent back were showing evident signs of weakness, although they tried to dissemble.

Captain Scott, with two companions, plodded on westward, and the only thing that kept them going during those weary days was that they had determined they would march west till December 1st, and when they felt inclined to turn back they could not very well do so until in their diary the full number of days had been ticked off. They used to tick off each day on the diary and thank heaven that another day had gone. On their return journey they lost themselves.

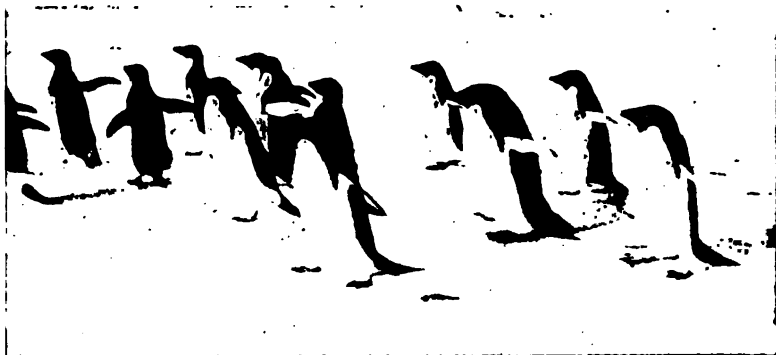
They could take the sights, but it was necessary to have a book to work the sights off, and they had unfortunately lost theirs and were steering their course by dead reckoning, not knowing exactly where they were. As they marched east they had to increase their marching hours to ten a day. It was about the close of the 13th of December that they got towards the end of the plateau, and on the morning of the 14th the surface beneath their feet suddenly began to descend, the slope became steeper, and the weather thicker. Captain Scott's two companions were behind, when one of them slipped and carried the other off his feet, and the two men with the sledge dashing past him he was soon on his back also. They could not think much as they went down the steep slope, but suddenly they were brought up in a patch of snow, and then a few yards further off they came to a stop and found on looking behind that they had come down over a fall about 200 feet high. At the top they had no notion at all of where they were, but when they reached the bottom they fortunately recognised their situation. Towards the evening of that day they got back on to their glacier again, and camped under a rock. They were badly bruised, another accident having also befallen them the same day, when they fell down a crevasse. They had been in the biting wind for five weeks, and then at the foot of this rock they had found a complete calm. They put their tents up and discussed what had happened, the temperature being up to zero, which was quite tropical for them.

Captain Scott here referred to the good work Mr. Ferrar had done in getting specimens of rock in that neighbourhood. He crossed a sort of ditch, got rocks, and then crossed the glacier, about 10 miles, returned again, and took some more specimens of rock. It is not easy to get rock specimens, but Mr. Ferrar got a great many, and deserves much credit for this.

At last Captain Scott and his two companions got back to the ship safe and sound. Then came the time to think of trying to cut the ship out of the ice. The men and officers used to work hard at the saw. What with the walking they had done, and now this work at the saw for their arms, their appetites were enormous. On one occasion nine of them had seven penguins in a stew, and a penguin is a little bigger than a goose! Notwithstanding their hard work at the saw, the crew made comparatively little progress, and the attempt to clear a channel in this way had to be abandoned.

The day after, Captain Scott went towards the north, and suddenly he saw the relief ships arriving, the "Morning" and the "Terra Nova." On the 15th of January orders were brought from these ships that if the "Discovery" could not be freed it must be left, and those orders were not pleasant to receive. They knew that some time or other the "Discovery" would come out, and there was not a man on board who was not willing to stop till that time rather than abandon her. This month of January was a dreariness month, but towards the end of it suddenly the ice began to break up, and the floes to break away, and in a week the edge of the ice field was within seven miles of the "Discovery." Then it was just a race between the breaking up of the ice and the closing of the season. The crew used to help—parallel cracks would form in the ice field and to join those cracks together

they resorted to blasting. Still, even then, there was for some time considerable uncertainty as to whether the ship would be got out. But on the 14th February, 1904, suddenly another great break-up took place, and then they saw the edge of the floe coming closer and closer, and the relief ships got so close that they could take them with a camera. Meanwhile all in the "Discovery" were very excited, and shortly after 11 o'clock one was able to see the very cheering spectacle of the three ships close together. The ice was 20 feet thick near the "Discovery." On the 16th the floe went out, and the day after that they floated out into the open water for the first time for nearly three years.



ADELIE PENGUINS.

Desperate hurry—No time to talk.

Without going into details of the homeward journey, it may just be said that the expedition got back to Auckland with only ten tons of coal on board their ship.

Captain Scott then said that before finishing he would like to show some pictures of the animals they met in those regions:—

- (1) The crab-eating or white seal.
- (2) The Ross seal.
- (3) The sea leopard—a formidable beast which feeds on the young penguins and seals. The explorers never liked to be on the same floe with it when alive. It has a formidable jaw.
- (4) Their "good tame seal," which formed the principal item of their food for two years. It was quite tame, and it would come and

smile at you, and if you poked it with a stick it would threaten its assailant, but could not do a man any harm, as practically it had no teeth. They swim very fast, but on the ice move very slowly.

(5) A Skua gull. These birds came in the spring and remained till the autumn. In the winter they were absent altogether. About the only flying bird which the members of the expedition saw in those parts at all. A carrion bird, but still very good to eat, and when the mutton ran short the crew used to have a Skua meal.

(6) "Our small friend the penguin"—the Adelie penguin and the Emperor penguin. One great characteristic of these birds is the way in which they are always busy, and they would march for about two hours in a great hurry and then turn right round and come back to the spot they started from. If you get in front of them they look at you quite surprised. They were rather sensible birds, because they—i.e., the Adelie penguins—used to lay their eggs on the dry land where clear of snow. They used to come in vast flocks suddenly on one particular day; they would come from the sea and swarm all over, scrape a few stones together and make a rough nest, and in that nest they would lay their eggs. The eggs are extremely good to eat, but we had to go forty miles to get them. The young ones in the rookery clamour for food and are never satisfied, and the old ones have to work hard for them.

Besides the Adelie penguin there was the Emperor penguin. Nothing was previously known of these except the old bird. The young were not known, nor the eggs. They are big birds, some of them weighing as much as 90 pounds. One of the parties found seventeen of the eggs and also a chick. The discovery was made that the Emperor penguins breed in the winter, in the darkest and coldest month of the year. They lay their eggs on the open snow, and it becomes of great interest to know how they can keep them sufficiently warm to hatch them. The birds are good nurses; they keep the egg, and the chick, on their feet and cover it over with a fold of their breast, and thus keep it warm, and it is never left for an instant. If the bird has to go away to feed, the motherly instinct is so great that another bird will rush to it and nurse it. Two of these chicks were brought back from Cape Crozier to the ship and nursed for some time. One of the petty officers sacrificed his sleeping jacket to bring them back, but after eating very much and thriving for some time these two chicks got the rickets and died.

Captain Scott, in concluding, said: "As regards the geographical results there is the extraordinary plain on the top of Victoria Land. This land starts at a height of 9,000 feet, and seems to continue for an indefinite distance at that height. It is really astonishing when it is considered what a mass of ice and snow this represents—it seems more than probable that the ice and snow is in some places 6,000 feet thick. Huge glaciers come down from the heights and descend to the sea. Most glaciers when they come to the sea break off and go away in the form of icebergs, but here all these glaciers bind together and form a thick coating of ice over the sea coast, and there is nothing like it known at all before. To think of the whole of the barrier as being like the picture would give an idea of that great plain which stretches for thousands of miles. In addition to the observations

which were taken for fixing the magnetic pole, there were differential observations taken, and then the weather observations taken constantly for two years ought to be of use. Mr. Ferrar, our geologist, found some fossil plant remains, and this discovery shows one thing for certain: that that great continent was at one time covered with forests, and through it rivers would run, and it would enjoy a very temperate climate. That, put very briefly, gives some idea of the objects achieved by the expedition."

Captain Scott remarked that whatever was achieved by the expedition was achieved not by one or two persons, but by everyone doing their best in their particular branch. They all did their share bravely and loyally, and that, he hoped, would always be the spirit in which all British expeditions would set forth.

CORRESPONDENCE.

Government University,
Tai Yuan fu,
Shansi, North China,
February 20th, 1905.

DEAR MR. SOWERBUTTS,

Many thanks for your letters of November 19th and December 17th, and for the kind Christmas greetings from yourself and Mrs. Sowerbutts. I should have acknowledged your former letter before, but I have been away from home and have only just got back.

My colleague, Mr. Nystrom, and myself have just got back from a splendid trip to Mukden, where we spent three most interesting days, and saw everything that there was to be seen at the Russian headquarters. We were extremely fortunate to get there, and Dr. Morrison, of *The Times*, was very much amazed as he had previously told us that it was impossible to get there. I hope to send you an article before very long on what we saw, and I think it will throw some very interesting sidelights on the war.

With regard to the spelling of the word Yuan in Tai Yuan fu it is permissible to spell it either Yuan or Yuen, as the Romanisation of Chinese words is in a very unsettled state, and if "e" is pronounced as "a" you can write Yuen, but the English would probably prefer "an" as the pronunciation is Yu-an. The word fu means prefectural city and is not part of the name of the city, though it is always added on when speaking of the place.

Other examples are Pao Ting fu (really Bao Ding fu) the capital of Chihli, Hsi An fu the capital of Shensi, Chi Nan fu (really Gee Nan fu) the capital of Shantung. Ningpo the Chinese always speak of as Ningpo fu.

Many thanks for the copies of the Wu Tai Shan journey, and I have sent copies to those who were interested in it.

When in Peking (or as the Chinese say Bei Ging) I saw Chao Erh Sên, whose Hunan proclamation you printed. He is now President of the Board

of Revenue, and so his rise has been very great. He is certainly the best Chinaman I have met, and has none of the pride and ceremoniousness you find in so many of his fellow-countrymen.

With best wishes to Mrs. Sowerbutts and yourself, also to all the friends of the Society.

I remain,

Yours very truly,

R. W. SWALLOW.

Government University,

Tai Yuan fu,

Shansi, North China,

July 20th, 1905.

MY DEAR MR. SOWERBUTTS,

The holidays have come and I have a little much-needed leisure, I am hoping to go to Peking in a few days, and I am going by Wu Tai Shan, which I described to you some time ago. It is well worth another visit, and I hope to be able to get some fresh information.

Thirty of our students have finished their Preliminary Course of three years' duration, and by the end of the year another eighty will have finished. Some of them have got good posts as teachers, but others will stay on and take a three years' Advanced Course.

The majority of the students have not shown conspicuous ability, but a few of them are splendid fellows and have made first-rate progress. They are very anxious to go to England, but unfortunately some of the best men cannot afford to go, while some who could afford to go would not gain much from it.

It would be a very fine thing if some arrangement could be made by which a few of them could be given scholarships at the English Universities.

By this means some of the fine young spirits of China would receive from England the best that she could give, and they, on their side, would not be slow to express their gratitude, and no one can guess the influence which such a policy would have upon China.

I hope to take a very brief holiday in England some time towards the end of the year, and I will reserve the account of our trip to Mukden until that time, though we have very few adventures to tell. In *The Times* of February 15th or 16th there is a telegram from the Peking correspondent which mentions about the trip. It begins: "A friend of mine, an Englishman, &c."

Our athletic sports were a great success. All the chief provincial authorities were there in official robes, and there was a very large crowd of spectators. Some of the events were open to students from other colleges, and this made the competition very keen.

I am sending you a ticket of admission.

I must ask you to remember me very kindly to Mrs. Sowerbutts, and all other friends.

I remain,

Yours very truly,

ROBT. W. SWALLOW.

THE EIGHTH INTERNATIONAL GEOGRAPHICAL CONGRESS, WASHINGTON, 1904.



GROUP OF MEMBERS OF THE CONGRESS

(Including our three Delegates) on the Steps of the Treasury Building.
Washington, September 10th, 1904.

THE PROCEEDINGS OF THE EIGHTH INTERNATIONAL GEOGRAPHICAL CONGRESS.

By H. C. MARTIN, F.R.G.S.

[Addressed to the Society in the Accountants' Hall, Manchester, on
Tuesday, December 20th, 1904.]

THE meeting of Congress extended over a period of sixteen days, the sessions being distributed among the six cities of Washington, Philadelphia, New York, Niagara, Chicago, and St. Louis, and involving a journey of over 1,200 miles from the opening in Washington to the closing session in St. Louis.

The Congress was not as successful as some of the former conferences so far as numbers were concerned, as only 750 members and delegates were enrolled, including 75 ladies. The list was therefore less than half the length of the Berlin Conference. About 500 members were in attendance, but a considerable number of these joined and left the conference at the various cities in which sessions were held.

Nearly all the foreign delegates—about 75 in number—attended the Congress from beginning to end, and many of those present were prominent in the scientific and business meetings, as well as at

the social functions. Although the number was small, it exceeded expectations, as it was known from the first that large numbers from Europe would be prevented by time, distance, and expense from joining the conference.

The arrangements for Congress were made by a number of societies, and as the work was spread over such a wide area, it must have been a great trouble and expense to the general committee, and must have entailed immense labour to bring the work and general arrangements to so successful an issue.

Many very valuable papers were presented by members who were unable to attend, and these greatly enriched the programme, and will be found most valuable when issued in the final report and book of proceedings.

A pleasing feature in the gatherings was the number of leading geographers of the United States, from the various departments of the Government, the Universities, and the high schools, who graced the meetings with their presence, and proved most valuable in the help they gave by means of lectures and descriptions during the various excursions.

In my opinion, the excursions when described and illustrated, as were those of Fairmont Park (Philadelphia), Niagara Falls and Gorge, Hudson River, Chicago, and Washington Observatory, formed some of the most valuable and interesting items of Congress, and gave members an opportunity of seeing the places under the most favourably pleasing and instructive conditions.

Amongst the papers read were many of high excellence and marked ability, and one anxiously wishes for the time when they may be considered thoughtfully at home, rather than in the host of subjects rushed through in a conference. There were 219 papers presented, including 21 on physiography, 15 on meteorology, 13 on volcanoes and earthquakes, 12 on glaciers, 3 on terrestrial magnetism, 6 on hydrology, 10 on mathematical geography, 12 on biogeography (botanical and zoological), 8 on technique, 21 on economic geography, 14 on historical geography, and 25 on educational geography.

As there were occasionally several lectures being delivered at the same time, and in cases, as in New York and St. Louis, at some distance apart, it was difficult to decide which to select in order to gain the greatest benefit. On more than one occasion I made an effort to attend some lecture I was anxious to hear, only to find it being delivered in French, German, Italian, or Spanish.

In the following detailed account it is my object to keep generally to the work of the Geographic Congress, and so a description of social functions and general impressions of American life, education, and work, etc., are carefully excluded. These and the voyage are left to my fellow delegates, Mr. Rees and Mr. Gunson.

Thursday, September 8.—Congress was opened in the George Washington (Columbian) University Hall in Washington, D.C., on Thursday, September 8th. Owing to the absence of the President of the United States, Dr. Walcott, Superintendent of the United States Geological Survey, and Dr. Gilbert, on behalf of the National Geographic Society, in graceful and fitting words gave the members of Congress a most hearty welcome to America.

The appreciation and thanks of the foreign delegates were well expressed in short speeches by Professors Cordier, Penck, and Oldham.

Commander R. E. Peary, President of the Congress, in his opening address briefly sketched the advancement of geographical work during the last nine years; and in earnest words placed before Congress some of the work yet to be done, including both the Arctic and Antarctic explorations.

The attendance at the opening ceremony was but small, very small considering the importance of the subject; and of those present quite a number were ladies, who added a charm to the dignity of the meeting.

In the afternoon parties were formed to visit the various scientific *bureaux* and places of interest. We decided to pay a visit to the Smithsonian Institute and the National Museum. I was delighted with the courtesy and kindness of those in charge, whose one object seemed to be how much they could show and explain in the limited time at our disposal. Most interesting descriptions were given on the various sections, illustrated by exhibits from the various States. The ethnology of the different tribes was described, and shown by a splendid arrangement of cases, in which life-sized figures were represented in the dresses of the tribes to which they belonged, and most of the figures were shown in the act of following their various occupations, as hunting, fishing, grinding corn, baking, making garments, making fires, preparing skins, worship, etc. We saw many other exhibits, some peculiar to America, and others from various parts of the world. It was with reluctance we left such an interesting and instructive building.

In the evening, from 10 to 12 o'clock, there was a reception at the United States Naval Observatory by the Superintendent, Admiral C. M. Chesters. Here we had an opportunity of examining some of those wonderful instruments which have done so much in making us familiar with the host of bodies surrounding our earth in space. An exchange of international time signals and messages was carried out at midnight, and many of the replies were read at Congress next morning.

Friday, September 9.—Friday morning was a general session, and devoted to Governmental surveys. Dr. Marcuse presented a paper dealing with the progress made in instruments, and the methods for finding geographic positions on land and sea, and also in the air. Professor Hayford described the most recent practice of the United States Coast and Geodetic Survey in triangulation, base measurement, and levelling; and Professor Penck introduced his project for a map of the world on a scale of 1:1,000,000.

In the sectional meetings—and nearly all the papers were read in the sectional meetings—papers on physiography, meteorology, and terrestrial magnetism were presented. Many of the authors of these papers, especially those of physiography were absent, and only two of the speakers were Europeans. "The Sculpture of Massive Rocks," by Dr. Gilbert, was illustrated by excellent views from the Sierra Nevada, California. Dr. Mills gave some illustrations of the distribution of rainfall around selected cyclones in the British Isles. Professor Stupart described the climates of the different climatic

provinces in Canada. Dr. Bauer showed a number of magnetic curves recorded at the time of the eruption of Mont Pelée. Professor Henry, United States Climatological Summaries, and others dealt with botanical and zoological subjects.

At 5 p.m. Mrs. Gardiner Greene Hubbard gave a reception at Twin Oaks; and at 8 o'clock Mr. Pepper gave an interesting lecture, illustrated by some beautiful slides, on the "Bolivian Andes."

Saturday, September 10.—All Saturday was devoted to sectional meetings, and among the papers presented were some valuable ones on physiography, biogeography, glaciers, meteorology, and terrestrial magnetism. Many of the papers were read by the authors in their own language, and this, of course, made the lectures of little interest to the majority. Others who tried to speak in English were perhaps less interesting, if more amusing. After sessions were closed, a number of the members were taken round Washington on an automobile, and had the points of interest—magnificent buildings, beautiful streets, and fine parks—described by a guide, through a megaphone. In the evening, Commander and Mrs. Peary gave a brilliant reception to the members in the ballroom of the New Willard.

Sunday, September 11.—An excursion to Mount Vernon—the home of George Washington—was arranged for Sunday. Three Government boats left the Naval Yard, and members had an opportunity of seeing some of the attractive spots on the Potomac. I am sorry to say I missed the pleasure of this excursion through the poor instructions issued, but as I had already visited Mount Vernon, it gave me the chance of visiting a delightful part of the country out at Rosslyn.

We left Washington at 7 p.m. and arrived at Philadelphia about 11 o'clock. Here we were met by a committee, and soon found ourselves comfortably placed at the Hotel Walton.

Monday, September 12.—On Monday morning members were invited to visit the office of the Land Title Building Company, near the hotel. This building is 22 storeys high, and we had to ascend some 40 steps above this to reach the roof. From this point there was a fair view, although it was misty. The view in fine weather would certainly be extensive and worth seeing. At 9 o'clock we entered coaches, and were conveyed to Independence Hall and the rooms of the American Philosophical Society—the oldest scientific society in the United States. There was much to see and instruct in each building, but we soon made our way to the coaches, and were driven past the spot where Franklin drew electricity from the air; and then through the busy parts of the city. We passed Baldwin's engine works, and in a short time reached the Commercial Museum. Here, Dr. Wilson, the director, explained the object and method of his work. The fine collection of specimens and the general arrangement of the exhibits are deserving of the highest praise. One cannot visit this building without gaining an insight into what America is prepared to do in its struggle for commercial supremacy. Dr. Wilson had the products from the various States so arranged that one saw the process of production or manufacture set out in order. Lecturers gave brief descriptions of what can be produced, and how it can be done; and these were illustrated by maps and

diagrams, sketches, and objects on cards and in cases. One could hardly visit the building without being struck with its importance and its possibilities. Many must wish for the same advantages in this country, where they are urgently needed. It appeared to me an ideal place for object lessons. All exhibits were so arranged that a student could trace the various operations in the production and manufacture of articles even without the valuable services of the experts always at hand.

Leaving the Commercial Museum, we crossed to the University of Pennsylvania and had lunch in the Houston Hall. We afterwards spent a short time in the Free Museum of Science and Art. Here students acted as guides, and the two who conducted our party proved most interesting and instructive. They gave us bright descriptions of the various sections, and devoted some time to the ethnology of music, where instruments represented the development of the art from the simplest pipe, string, and pom pom to the highest productions. In the section devoted to Worship there were images, gods, masks, dresses, altars, etc., from the different Indian tribes, and also from other countries. This forms a wonderful collection and is highly prized. Many of the ceremonies were represented in cases, the priests being dressed in the robes peculiar to their worship.

At 2-30 we took coaches again and drove through Fairmont Park and along the Wissahickon Drive. The scenery was very fine, and the drive thoroughly enjoyable in spite of the great heat. We reached the Philadelphia Country Club about 6 o'clock, where we were entertained to dinner. President Peary gave a short address, and Mr. Bryant, President of the Philadelphia Society, welcomed Congress to Philadelphia. The day altogether was a delightful experience, and we all felt sorry at having to leave in order to join the train for New York.

Tuesday, September 13.—The first general session in New York was held in the fine building of the Geographical Society, and most of the sectional meetings were held in the American Museum of Natural History. President Peary opened the session with an address of welcome, and this was followed by an appreciation of the late Frederick Ratzel. Sir John Murray then gave an account of deep sea exploration, in which he spoke of two manuscript maps he had had prepared giving the latest information as to ocean depths and the distribution of life in deep water.

At the close of the session there was a meeting of the President and the foreign delegates, after which members adjourned to the Museum of Natural History, where they were entertained to lunch.

In the afternoon many papers were presented in the sectional meetings. The subjects taken included oceanography, exploration, economic geography, educational geography, and volcanoes, and earthquakes. There were many excellent productions among the papers, and some of the slides were very fine and highly appreciated by the audiences.

In the evening there was a lecture on "Mountaineering among the Himalayas" by Dr. and Mrs. Bullock Workman; and at 9-30 the Geographical Society gave a reception, which was very well attended.

Wednesday, September 14.—On the Wednesday morning Congress

met to transact business and receive invitations for the Ninth International Geographical Congress. The invitation from Geneva, Switzerland, was accepted, and the Congress fixed for 1908. During the day the sectional meetings were continued, with an adjournment at noon, when Congress was entertained at lunch in the Museum of Natural History.

In the evening the American Geographical Society gave a subscription dinner at the Endicott Hotel, complimentary to the foreign guests. After dinner, Monsieur H. Cordier, President of the Paris Geographical Society, presented to President Peary the gold medal awarded him by the Paris Geographical Society for his work in the Arctic regions.

Thursday, September 15.—Thursday was given to an excursion on the Hudson River. It was a delightful day, and everything necessary for the comfort and convenience of members had been carefully considered.

The scenery was remarkably pretty in many parts, and the excursion was made the more enjoyable by the able description of the Hudson Valley given by Professor Davis, who had also written a brief account, which had been previously circulated. We reached Fishkill at 1 o'clock, and here electric cars were ready to convey us to Mount Beacon. The party reached the summit by an elevator car, and from this point a magnificent view of the Hudson Valley and the Catskill mountains was obtained. Professor Davis gave a lecture on the summit, and made the physiography of the region very interesting. Returning from Fishkill, we stopped at West Point and visited the United States Military Academy, where we saw the cadets at drill. At West Point we joined the train, and had an all-night ride to Niagara, where we arrived at 7-30 a.m.

I should like to say how highly I appreciated the kindness, courtesy, and hospitality of those who made such personal sacrifices in order to make Congress so successful. All the foreign guests were entertained by the American Society from the time of leaving Washington until joining the train at West Point. This included travelling and hotel expenses.

Friday, September 16.—At Niagara we had breakfast at the International Hotel. From the window we could see the river rushing in its mad course just before reaching the brink of the Fall. Dr. Gilbert gave a lecture on the Falls of Niagara in the Opera House, and illustrated his remarks with some fine slides. After the lecture parties were conducted to the points of interest, as Goat Island, "Cave of Wind," and the Falls. I went on the "Maid of the Mist" as near the Fall, on the Canadian side, as was considered safe. The wild rush of water, the dense spray, wonderful rainbows, and the deafening roar of the water all combine to make Niagara remembered. After lunch electric cars conveyed us across the Suspension Bridge and into Canada. We went some distance past the Falls to see the power station for generating electricity by water power in construction. We then passed along the Canadian side of the gorge to Queenstown, where we spent a short time in the park near the Brock monument. Here we had a short lecture on the geography of the district, standing on a noted escarpment, which divides the upper from the lower plain.

We crossed the river to Lewiston, and returned through the Gorge on the American side, having seen one of the great wonders of the world, and spent a most enjoyable day.

Saturday, September 17.—At 7-30 we joined the train, and reached Chicago about 8 o'clock in the morning. Breakfast was provided at the Stratford Hotel, after which members took train to the University of Chicago, where they were welcomed by Professor Harper in the Kent Theatre. A number of addresses were given, in which Professors Penck, Salisbury, and Goode, Dr. Mill, and others took part. A splendid lunch was provided at Hutchinson Commons, complimentary to members of Congress. Coaches then conveyed members to the Field Columbian Museum. It was on this drive that one of the horses fell in a fit through the heat, and we had to walk a considerable distance. On leaving the Museum, we were driven round the city, through the beautiful parks, and along some of the streets. In the evening there was a reception at the building of the Chicago Historical Society, after which the President of the Society gave a short sketch of the history of Chicago. The night was spent in the train at Chicago. This was arranged in order that members could travel over the prairies of Illinois in the day time, and so Sunday was spent in the train.

Sunday, September 18.—There was little of interest on Sunday beyond a severe thunderstorm and an enormous country almost as flat as a pancake. The soil is fertile, and it is one of the most productive regions in the world, but there is no scenery. As far as the eye could reach in every direction, and this for the hundreds of miles we travelled, it was just a vast plain. Here and there a little wood was seen to break the monotony, and it was quite an exciting time when the train was stopped for members to visit No. 6 Madison Mine, where all the machinery for the winding, hauling, ventilating, etc., was worked by electricity. The manager was very interesting in his descriptions, and we had the pleasure of his company to St. Louis, where we arrived in the evening. It was quite a distance from the station to the Exhibition ground, and must have taken the car a good part of an hour to reach it. We put up at the Inside Inn, and although Sunday, the place was like a fair ground, as there must have been thousands of people massed together.

Monday, September 19.—Monday was spent in registration at the World's Congress of Arts and Sciences, and visiting some of the Exhibition buildings. I might just say that to me the Exhibition was an immense affair. There were many magnificent buildings, in which were placed some of the finest of the world's exhibits, but they were too spread out—some of them so isolated that you might wander about for a week and not see them. The central part was a magnificent picture by day and a dream of loveliness by night, when there must have been hundreds of thousands, if not millions, of electric lights, and many of them continually changing colours.

I was greatly struck with the difference in the organisation of the World's Congress of Arts and Sciences, into which the Geographical Congress was now united, and that of the Geographical Congress. In the World's Congress of Arts and Sciences every lecture, meeting, and function was arranged in book form, with the time, place, and

all particulars splendidly mapped out; while with the Geographical Congress we had often to make journeys and enquiries before we could know what and where the lecture, etc., would be. In one or two cases we had not the information until too late to make use of it. This was no doubt due to the fact that Congress was arranged by various societies, and extended over such a large number of miles.

Tuesday, September 20.—The morning of Tuesday was devoted to a participation in sections of the Congress of Arts and Sciences. I took the opportunity of visiting the Festival Hall, said to be the largest in the world. It also contains the largest organ in the world. An organ recital was given while members assembled to hear the lectures. The Geographic Session was held in Hall 14, in the Mines and Metallurgy Building, at 4 o'clock, when several papers were presented, dealing with the "Future of the Congo," "The Atlantic Border Regions," "Glacial Erosion," etc., after which there was a meeting. In the evening a reception was given to President Peary.

Wednesday, September 21.—Wednesday was devoted to anthropology, following geophysics. A large party spent the morning with the Philippines, where a lecture was given on the Philippine Islands, their productions, and the various tribes. This proved intensely interesting. We were conducted through two museums, the one rich in relics of war and other implements, the other containing the products of the islands. This gave some idea of the enormous resources of the islands, in timber, grain, grasses, and fruit, as well as many manufactured articles. We were conducted through several of the model villages, where the native tribes were living under conditions as nearly natural as it was possible under the changed conditions. A school was being carried on for the teaching of English on the Berlitz system, and many seemed to be progressing. In the afternoon Mr. Gunson and I went for a trip on the Mississippi, but I am afraid we were greatly disappointed. It is undoubtedly a large wide river, but the part we saw was tame in the extreme. On the one side there were a few hills, but the other was quite flat, and the whole compared very unfavourably with the Potomac and the Hudson in beauty and variety.

Thursday, September 22.—Thursday morning was devoted to sessions in the World's Congress, and the afternoon to historical geography. Many valuable papers were presented dealing with the history of geography in various parts of the world. There was a decided falling off in the number of members in attendance, and this was noticed at most of the meetings, there were so many; and the attractions were so great that it was only to be expected.

In the evening Commander Peary gave the final address in the Festival Hall to a large and enthusiastic audience; and he closed Congress in fitting and appropriate terms, in which he said:—

"We are assembled here for the last meeting of our Congress. Whether the Congress has been a success or not rests with the judgment of time and yourselves. I believe we are justified in looking upon its work with satisfaction. One thing may be said: In every department of this Congress the papers read have shown a distinct step in advance since the last Congress, and in many departments there has been progress not merely to a higher plane, but to an

entirely new horizon. The number of resolutions adopted is less than usual, and those adopted, it is believed, are worthy of an international organisation. The salient resolutions relate to—a map of the world on a scale of 1: 1,000,000; Polar exploration; Oceanography; and a World's Census. These are unequivocally international subjects. A universal map to a uniform scale; a universal census; the conquest of the only remaining great unknown areas of the globe; the prosecution of the study of the great subaqueous world, in which but a beginning has yet been made, in spite of the work of Murray and others.

“There has been no specially prominent topic before Congress, no one overshadowing subject, as in the two preceding Congresses. The Congress has moved on lines of general, equable development. We from America have been broadened by the presence of the Congress; we are under deep and lasting obligations to it for its certain stimulus to geographical interest and work in this great country. A very gratifying feature has been the strong and satisfactory showing of our own home geographers. At no previous Congress have so many of our leading men been present. If you from abroad have received ideas and impressions which may in any way assist you in your methods, or round out and make more complete your work and results, we shall be proud and pleased. One feature of the Congress has been its migratory character. Whether this has been a desirable innovation rests with you to decide.

“We are indebted to our friends and visitors from abroad who have devoted such share of time and effort in coming to us; and we are doubly indebted to those who have brought their ladies along to charm and brighten our proceedings. As for the ladies themselves, that they have braved the terrors of the sea and a new land to be present proves them brave as well as fair. We regret those other friends whom stress of unavoidable circumstance has kept from coming. Two weeks of social and technical contact and association with brains and culture, from every civilised portion of the earth, is an episode in the life of any one. When to this is added the camaraderie of travelling companions, the combination is nearly ideal. If in any way we have failed in making this period and our journeyings pleasant to our friends and visitors, believe me it is not for lack of will or disposition.”

Then followed thanks of Congress for the obligations due to the many societies and workers for their efforts to make Congress pleasant and successful, and especially to Drs. Day and McCormick, Mr. Adams, and Professors Davis and Libbey. Commander Peary then concluded by saying:—

“Personally I deeply regret the ending of this most enjoyable occasion. I hope we shall meet again at the next Congress to report still greater advances in our science; but if it be willed that some of us shall reach that end which comes to all men soon or late, may it be with a record of good work and lasting good accomplished for science and geography. With sincere good wishes for our successor, the Ninth International Geographic Congress at Geneva, I will, if there be no further business to come before the meeting, declare the Eighth International Geographic Congress closed.”

THE SOCIAL CHARACTER OF THE EIGHTH INTERNATIONAL
GEOGRAPHICAL CONGRESS, HELD IN AMERICA,
SEPTEMBER, 1904.

By the Rev. FRÉD. A. REES, (RHYSFA), Stretford, Manchester.

[Addressed to the Society in the Accountants' Hall, on Tuesday,
December 20th, 1904.]

WE were a party of four from Manchester, viz., Messrs. W. Telford Gunson, C.E., H. C. Martin, F.R.G.S., Rev. A. Streuli, and myself. We sailed from Liverpool in the White Star liner "Majestic," on Wednesday, August 31st, 1904. In crossing we experienced one of the severest of the equinoctial gales of the season, during which two heavy seas struck us broadside at midnight like cannon balls, making our ship shiver from stem to stern. The sea broke into the steerage quarters, and caused a panic. One man died from fright, and was buried at sea.

New York received us with her usual "custom"—a custom unparalleled in any part of the world; at least, such is my experience. I have travelled in many parts of the world, but have never had such trouble in "getting through" as here. It took us three hours to pass from one official to another, and ultimately to get clear.

Mr. Martin and I at once made for Washington, travelling all night in order to be at the opening of the Congress in the morning. With the ordinary meetings of the Congress this paper has nothing to do; my province, according to a wise assignment, is the social side.

After settling down in our hotel we reported ourselves at headquarters, and were heartily welcomed by the officials, some of whom made sympathetic inquiries concerning the late Mr. Sowerbutts, and one or two spoke of the kind reception by our Manchester Society on various visits to this city. Being duly decorated by a young lady with the official badges—one a pretty enamelled metal brooch, and another bearing our Congress number by which we could be identified—which would admit to all the meetings and privileges of the Congress, we became full-fledged members of the same. To complete the honours, degrees were accorded us—Mr. Gunson was made "Colonel"; Mr. Martin "Professor"; Mr. Streuli and I received the degree of "Doctor." These were our designations throughout, and by them we were announced at all the functions and public gatherings.

The first afternoon at Washington was spent in official sight seeing, several parties being formed, accompanied by Congress leaders. We chose the Smithsonian Institute, where Mr. Martin and I were received by Dr. Langley, the Secretary of the United States Museum, Dr. Hough, and Colonel Beckwith, who were most obliging in their personal attention to us. Cameras are not allowed in the museum, but Dr. Langley kindly gave me special permission to take some of the ethnological groups. The strength of the sun on so much glass made the conditions unfavourable for good pictures, so, to save my plates, he generously offered to send me a set of their official photographs. These I found awaiting me at home on my return.

There were some brilliant receptions at Washington. The first was on the evening of our arrival, when we were received at the National Observatory by Rear-Admiral Chester, and entertained by Colonel Hay, Secretary to the Navy. This was a midnight experience, when a special message was flashed round the world in both directions. One of the replies received the next day indicated that it had been "received six minutes before it was sent!" The next afternoon Mrs. Hubbard gave us a garden party at her beautiful house. We were received in person by her son-in-law, Mr. Bell, of phonograph fame. But perhaps the most brilliant of these receptions was that given by the President of the Congress, Commander and Mrs. Peary, in the large ball room of the new Willard Hotel. Here we were introduced to many of the *élite* of local society, including the Chinese, Turkish, Swiss, and other Ministers of State, the Italian Ambassador, and members of other legations. With the Secretary to the Japanese Legation, Mr. Kikki, the members of our party, chiefly Mr. Gunson, made special friends. He fraternised with us throughout the Congress to St. Louis. Commander Peary won all hearts by his robust, straightforward and manly character. Geniality was combined with genius, and leadership with liberality of thought. With his charmingly graceful wife they made ideal hosts. An excursion was arranged by the Potomac to Washington's home, at Mount Vernon.

We arrived at Philadelphia on the Sunday evening, and were received by the Geographical Society of that city, but not entertained by them. On Monday we were their guests, and treated to a drive through the commercial and residential quarters of the city. We visited the Independence Hall, where we were welcomed by the President of the Philosophical Society and others in the room where the Declaration was signed. The drive was continued to the Commercial Museum. Here we were met by Dr. Wilson, the chief director of the Filipino Colony at St. Louis, who explained to us the leading features of the Museum, and invited us to be his guests at the Filipino Colony when we reached St. Louis. At lunch we were entertained by the University of Philadelphia at Houston Hall, and treated to the peculiar "hoc" of the students' cheers. After a visit to the Science and Art Museum we were taken for a drive through the celebrated Fairmont Park, which has an acreage, or, rather, mileage, equal to that extending from Manchester to Alderley Edge. The heat was almost tropical, and even those who at ordinary times regard water as too weak a drink were glad to avail themselves of the cooling springs by the wayside. Our drive ended at the County Club House, where we were entertained to dinner, arranged in honour of the foreign delegates. Here we met several of the old Arctic explorers. The air was nicely cooled by a heavy downpour of rain whilst we were at dinner. We were driven to the station to meet our special train, which was to convey us to New York.

We arrived at New York at midnight, and made our way in a solid company to the Hotel Endicott by the overhead electric train. It was rather trying to our tired natures to find that the manager had not allocated us our rooms before arrival. This meant that the majority had to wait until about 3 a.m. before they were billeted. For myself I was glad to have a sofa, with a pillow and a covering, for that night. I dare not describe some of the scenes of the corridor

in which our rooms were to be found! But it was only for the few remaining hours of that night, and it was all borne good humouredly.

Special reference must be made to the royal way in which the foreign delegates were treated by the American Geographical Society. We were their guests on the rail from Washington to New York, and by them entertained during our three days' stay in New York, finishing up with a delightful excursion up the Hudson River. In addition to the ordinary "buffet" lunch provided each midday, a general reception was held on the Tuesday evening; and on the Wednesday evening a special subscription dinner, complimentary to foreign delegates, was given by the above society, at which Commander Peary first revealed his plans for his next year's expedition to the North Pole. Prior to so doing he was decorated by M. Cordierre with the gold medal of the French Society.

The storm of the night preceding the excursion up the Hudson left a beautifully clear and refreshing atmosphere. Accompanied by many of the New York scientific celebrities we had a delightfully pleasant and profitable day. The panoramic views on each side of the river were magnificent. We landed at Fishkill, and ascended by electric and cable cars to the old Indian village of Matteawan, and to the top of the Beacon Heights, from which a comprehensive view was had of the valley from the Dutchess County in the north to the Putnam County in the south. Re-crossing the river, we landed at West Point to accept the courtesies tendered by Brigadier-General Mills, the Superintendent of the United States Military Academy. A guard of honour escorted us to the parade ground, where a corps of cadets went through their picturesque drill, winding up in a grand march past and a salutation of "Old Glory."

Through the generosity of the President of the New York Central Railway a special Pullman train was placed at our disposal between New York and St. Louis. The foreign delegates were given free passes by this train, being only asked to pay for the use of the "sleeper," and the meals on board. This was the first time for some of us to have the opportunity of experiencing Mr. Dooley's "Luxury of Modern Travel." A Pullman is not always as described in railway agents beautifully got-up pamphlets. One of our companions—Rev. J. Flanagan, of London—on rising one morning found himself in competition with the negro attendant on board for colour. It had been raining coal-dust in his berth!

We arrived at Niagara about 8 a.m. on the Friday and breakfasted at the Hotel International. Here we were met by Dr. Gilbert, the chief of the United States Geological Survey, who gave us an illustrated lecture on the district in the theatre. Dr. Davies, who had made the Hudson excursion so interesting by his lecturettes *en route*, with Dr. Gilbert, accompanied us in an excursion by special electric car along both sides of the river and falls. It is not in the province of this paper to give a description of the falls. A few of us ventured in "The Maid of the Mist"—a daring little steamer that looks more like a toy than a powerful vessel—in her venturesome trip under the falls. Dressed in our oilskins and masks, we looked more like anarchists bent on mischief than sober-minded scientists.

Leaving Niagara the same evening, we travelled on the Canadian side, *via* Detroit, to Chicago. Breakfast was provided at the Hotel

Stafford, after which train was taken for the University, where a session was held. After luncheon a drive was arranged from the Field Columbian Museum through the parks to the city. Instead of attending the reception at the building of the Chicago Historical Society, a few of us attended the opening meeting of Roosevelt's campaign in the Auditorium, a magnificent building, where none were allowed to stand, none being admitted but for whom chairs could be found.

Having relatives in the city, I enjoyed the luxury of a night's rest in a real bed—the first bed I had slept in for a week. I appreciated it!

The Congress train, the original programme having been changed, left Chicago on the Sunday morning. Mr. Streuli and I, having preaching engagements for the day, had special permits to travel by an ordinary express on the Monday.

At St. Louis we stayed at the Inside Inn. The social character of this inn is indescribable. We shall not soon forget it; but as it was not part of the official programme of our Congress I must do no more than mention it.

We were made honorary members of the Science and Arts Congress, and attended one or two of their meetings.

Commander Peary gave us another magnificent reception, and more fully revealed his plans for the North Pole expedition. On board the "Discovery" there was an informal reception, and afterwards we witnessed a most realistic dioramic excursion to the North Pole.

Dr. Wilson received us at the Filipino Colony, and with his assistants we spent several most interesting and edifying hours among these peculiar but promising people.

At St. Louis our connection with the Congress ended. A few of the Geographers journeyed further west to Mexico, etc., and had anything but pleasant experiences *en route* through floods and delays.

One cannot speak too highly of the courtesy of the gentlemen responsible for our comforts and pleasures during the Congress. All would readily agree that Dr. McCormick, the Secretary, and Dr. Day, who had charge of the transports, deserve special mention. Everywhere we went we found that courtesy is a marked feature of the educated American.

Our Manchester party separated at St. Louis, Mr. Gunson going to Canada, Mr. Martin to Pittsburg, Mr. Streuli, Mr. Flanagan, and I going on to Ohio, and thence through the Southern to the New England States to fulfil several engagements at several State conventions. We met again on board the steamship "Celtic" (except Mr. Gunson, who returned later), and travelled home together in a calmer sea than on the outgoing passage.

I have kept my pen to the phase of the Congress allotted me. I have foreborne descriptions and references to papers and meetings; all that is left for the abler pens of the others. In our travels we had many narrow escapes and exciting incidents. To narrate them would be to write a book. It is impossible to have travelled some 13,000 miles, and visited over 19 different States, and have been in such company, without learning much, and the "much" has led to a deeper trust in God and a firmer confidence in His providential care.

THE EIGHTH INTERNATIONAL GEOGRAPHICAL CONGRESS,
WASHINGTON, U.S.A.

By W. TELFORD GUNSON, C.E.

[Addressed to the Society, in the Accountants' Hall, Manchester, on
Tuesday, December 20th, 1904.]

AS one of the delegates from the Manchester Geographical Society to the Congress, accompanied by Mr. H. C. Martin, F.R.G.S., and the Revs. F. A. Rees and A. Streuli, I sailed from Liverpool on Wednesday, August 31st, 1904, in the White Star Liner *Majestic*. Arriving at Queenstown we entered the fine harbour, and whilst staying four hours witnessed the interesting Irish traders in the boats surrounding the vessel selling Irish products to the passengers. We passed the Fastnet Rock, 240 miles from Liverpool, where the log commences to detail the daily runs of the vessel. Soon afterwards we overtook the steamer *Hamerford*, which had started before us. For two days the weather was beautiful, but on September 3rd, about 5 p.m., I noticed five stormy petrels, and, pointing them out, remarked that we were in for a storm. Almost immediately afterwards we ran into a gale, and a terrible night ensued. Everything in our cabin was pitched about; water two feet deep ran down the emigrants' deck, and so violent was the storm that the handle of the steam valve was blown open, and the winch set going, which, in consequence, had to be lashed down. The storm lasted twenty-four hours, and then followed beautiful weather. Owing to this storm we were short by 88 miles by the log from the previous day's run. Off the Newfoundland Bank we ran into a fog, and the fog horn was kept blowing every quarter of a minute, an ordeal by no means harmonious. After the fog cleared we passed the Cunarder *Saxonia*, which had started the day before us. On September 7th we sighted America for the first time in Long Island, but Long Island is 68 miles from New York. At this point I may mention that previous to sailing from Liverpool we each had to sign a declaration replying to 22 questions. Of course name, occupation, etc., were expected, but we were required to answer such very personal inquiries as—Whether ever in prison, or almshouse, or in hospital for the insane, or ever supported by charity? Whether a polygamist, whether an anarchist, whether deformed or crippled, and last, the most astonishing of all for a man to be expected to define for himself, What is your mental and physical condition?

Previous to landing at New York, however, we were again subjected to another written examination with similar questions; this was as our ship was making for the harbour. Again, before being allowed to land, we all had to file before a Government official, and were put through a *viva voce* cross-examination upon other questions

of a similar character. This official, not content with our answers to the original documents as to whether we each possessed 50 dollars, demanded to know exactly how much money each passenger had. As this was a public enquiry it was very keenly resented by everyone, and particularly when we witnessed the very objectionable instance in which a lady, who, having said she possessed £50, was required by this official to produce it, and the poor woman had to undo her dress before us all, and bring the money from the inside of her corsets, where she had placed it for safety. On a subsequent occasion I met a Custom House officer, and on my detailing the circumstances to him he said such conduct was entirely beyond the official's instructions or powers, and deserved exposing, which I said I intended to do. When it is remembered that this lady had paid over £20 for her passage, and was far removed from any suspicion of being a pauper emigrant, so outrageous a proceeding requires no further comment from me.

We were, however, not allowed to land even yet, for we had to pass another official before being allowed to leave the saloon, and answer several more questions, which were merely a repetition of the others. On remarking to the officer that all this was an extraordinary proceeding, considering that we had already filled up the original forms, he simply replied that before long we should have to come to the same in our country. This, I told him, I very much doubted as too un-English to be even thought of in the old country.

I slept in New York that night, and left for Washington next morning, following my colleagues, who had gone on by the night express. Arriving at Washington, I reported myself to headquarters at the Ebbit House, where we were decorated with the official badges as members of the Congress, and by some method unknown were dubbed with other degrees of distinction, viz., "Colonel" Gunson, "Professor" Martin, and "Doctors" Rees and Streuli, by which honourable titles we were, *volens volens*, severally known during the whole time of the Congress.

Naturally, from my profession, I took a great interest in the city and its buildings. No city in the world has such fine streets as "the city of magnificent distances," as it is described by one traveller, yet grass grows in the great Pennsylvania Avenue and other principal streets. A curious thing in the Municipal Government is that each householder has to get rid of his own dust and ashes, and if he neglects to do so, and thus causes a nuisance to his neighbours, the medical officer promptly orders the removal, and charges him with the expense, a much more costly operation.

Of all the fine buildings in the city, the Library of Congress is, perhaps, the most remarkable. It adjoins the Capitol, and covers an area of ten acres, which is equal to three city blocks. It has frontages to three streets, and is lighted by 2,000 windows. The wonderful sculpture and wall paintings which adorn it are symbolical of the whole field of human knowledge and culture, and together with its great extent make it the most wonderful and magnificent building of its kind in the universe. The Parks are also remarkable for their beauty and extent, covering as they do half the area of the whole city.

With reference to the meeting of the Congress, I was very much astonished at the smallness of the audiences. For instance, I attended Professor Penck's lecture, and only eleven persons were present, although the professor had travelled from Vienna, and was exhibiting splendid cartoon plans of his lecture. At Dr. Hamberg's lecture on "Glaciers" there were only eight present. Certainly there were several lectures always proceeding simultaneously, but the contrast between the time and trouble necessary in the preparation of these lectures, and the interest returned, if it was to be gauged by the audiences, must have been more than discouraging. This struck me as a trait of the American character when I compared it with the interest shown in, say, the proceedings of the British Association here.

On the evening of the 10th we attended Lieutenant Peary's Reception at the Hotel Willard, which I mention in particular, because the large Reception Room was on the tenth floor.

On Sunday we visited Mount Vernon, approaching it by boat on the Potomac. This, the residence of General Washington, is loyally cared for by a committee of ladies, whose ancestors had been actively engaged in the War of Independence, and it is noteworthy to remark that Mount Vernon had never before been opened to visitors on a Sunday.

On September 11th we arrived at Philadelphia. My first impressions were—What a beautiful city, what splendid hotel accommodation, and what dreadfully bad paving everywhere! The City Hall is a magnificent building, the tower of which is 530 feet high, and the highest in the world; by comparison it is 244 feet higher than that of our own Town Hall. The booking hall of the Central Station of the Pennsylvania Railroad is the finest existing, both in extent and magnificence, being built of solid marble, whilst the capital of the company is twice that of the London and North-Western Railway, the largest of our systems. In this hall was an "Information Bureau," at the window of which stands an official to give information concerning times of arrival and departure of all trains. A queue of people was continually passing him, yet he gave the exact time of departure and arrival without the least hesitation, the most marvellous feat of memory I ever witnessed.

I may mention here that at every city we visited, the local Geographical Society had a programme ready for us, and this became so overpowering and the strain to go through it so great that we were eventually worn out by the great kindness and hospitality shown us by the Americans. As an example, on the 12th we visited the Philadelphia Geographical Society at Independence Hall, the Philosophical Museum, the Museum of Art, had lunch at Houston Hall, visited Field Mountain in Fairmont Park, drove to the County Club, which is several miles into the country, were there entertained at dinner, and finally returned by train to New York, where we arrived at midnight. In fact, there was so much to do and to see that one day's programme almost knocked out of recollection what had passed on the previous day.

At New York, for three days, we attended the usual functions, sight-seeing, lectures, lunches, receptions, dinners, etc., etc., but

these I will leave to the descriptions of my colleagues. I naturally took a great interest in the city, in its buildings, and its municipal life, etc. Without fear of contradiction I may say that New York is the worst paved city in the world. It is no uncommon thing to find the tram lines two to three inches above the paving, and it is marvellous to see the vehicles mount and jolt over such obstructions. The means of transit is, however, wonderful in its variety and extent. For instance, at the corner of Thirty-fourth Street and Park Avenue are four distinct systems of car lines passing one above the other—namely, the street car system, below this the old tunnel for horse cars now electrified, below again the new subway of four tracks, express and local, and lower still the subway of the Pennsylvania Railroad, running east and west. As trams run in the daytime every two minutes, and in the night every seven minutes, we must agree with Lord Claud Hamilton, who said the din, bustle, and hurry of American life are something awful. Such a thing as a good night's rest could not be had. Although I occupied a back room eight storeys high in our hotel, the sound of the traffic was all round the place, and the experience of Lord Claud Hamilton was mine in consequence.

In this relation I may mention that there were the usual precautions against fire, but in every bedroom there was a very novel one indeed. A long rope fastened to a staple in the floor was coiled against the window. In case of fire you were to let down the rope out of the window, and descend it, hand under hand, to a place of safety. When I looked down my eight storeys and saw a glass roof at the bottom, I prayed that there would be no fire while I stayed there. The sky scrapers of New York are, of course, very prominent everywhere in the lower and most congested portion of the city, and the reason is very plain. The area being bounded on one side by the Hudson River, and on the other by East River, there is naturally no room for buildings to be extended laterally, and so they have to go upwards. I will only describe one, viz., Park Row Buildings, which is 375 feet high, has 32 storeys, 950 offices, and a population of 6,000 in the day time. I inferred that rights of light are not recognised in America.

Unlike our English experience, the higher you go the more rent you pay. At the front entrance there are six lifts, three on one side and three on the other—one set, named Express, never stops for fifteen storeys, the other, named Local, stops at every floor of the first fifteen storeys. The reason is obvious, for one noticeable characteristic of the American is his time saving.

One of the strangest sights of New York is to be seen between five and seven in the evening at Brooklyn Bridge. As there are only two outlets from the business centre of New York, viz., north by tram and east to Brooklyn over the bridge, the congestion of traffic at the latter is simply appalling. The accommodation for passage over the bridge of tens of thousands let loose at the above hours is a double track railroad, two carriage drives, an electric loop line, and a broad free footway; and, though there are ten crescents, the cars swinging through the ten divisions, 12 feet apart, with two or three cars stopping on each crescent, the crushing, dodging, striving

crowd seem to think only of themselves, and whether man or woman, master or clerk, it is the survival of the fittest, and a free fight to gain admission to the cars.

I find that the principle of the "Taxation of Land Values" is somewhat of an accomplished fact in New York and some other cities of the States. When land changes hands for building purposes the roads are at once laid out, paved and sewered by the city authorities, at the expense of the abutting property owners. The object of this prompt action is to improve the property and prevent it from lying idle for any length of time, as the owner is rated for the land whether he builds upon it or not. It must, however, be remembered that land in America is mostly freehold.

New York, it is no exaggeration to say, possesses the finest water supply in the world. The Croton river watershed is the source, and the service reservoirs are in Central Park. It is brought through tunnels completed in 1842, which are now supplemented by a tunnel 14 feet in diameter, driven through solid rock at a depth of from 100 to 400 feet. It is questionable if the same amount of water per head, 112 gallons daily, is used in any other city of the world.

On September the 15th we left New York, and steamed up the Hudson River to Fishkill, and visited Mount Beacon, from which a magnificent view of the Catskill Mountains was obtained. Sailing down the river we landed at West Point, where a parade of the cadets was specially arranged for us, and a picturesque sight it was. Boarding our train, we travelled all night to Niagara, arriving at 7 a.m. The Falls of Niagara have been so often described that I will only proffer my general impression as magnificent. Of course we met the usual American, with his typical boast that the scene is the finest of its kind in the world. I "flabbergasted" him when I told him that we had far finer and larger falls in our dominions than Niagara—in the Victoria Falls of the Zambesi, in Rhodesia, which were twice as high, twice as wide, and turn over six times the volume of water. He had never heard of these. I did not, however, think it necessary to tell him that in the dry season there is not half as much water as at Niagara. I left him to find that out. Concerning the Falls, a story is told of a Scotchman, who was asked by an American friend, "Isn't it just the most marvellous thing you ever saw in all your life?" The stolid Scot, after pausing a moment, contemplatively scratching his head, replied, "Na, mon, na. The Duke o' Buccleuch's gillie has a peacock wi' a wooden leg."

Leaving Niagara at 7-30 p.m. for another night's journey, we arrived at Chicago at 8 a.m. Being wearied with sightseeing, I took French leave of my colleagues, and strolled through the city on my "own," and truly it is past description. I will therefore content myself with quoting a New York journal: "Chicago is the second biggest fact in the Western Hemisphere, and the rawest fact in any hemisphere. Chicago is crude, crass, underdone, unfinished, ill-smelling, dirty, beautiful as Paradise in spots, great, wonderful, distressing, disgusting, exhilarating, amazing, paralysing, potential, funny in many ways, punk, prosperous, raw, rowdy—Chicago is Chicago." Lest this may be considered a biassed view from the rivalry of New York, I append a description given by a Chicago

paper, which, bragging about the liveliness of Pork Metropolis, boasts that there is a murder every seventy hours, a suicide every eighteen hours, a "hold up" every six hours, an arrest every seven minutes, and a disturbance of the peace every six seconds. John Burns, M.P., by the way, described Chicago as "Hell with the lid off." I have been led to give the above quotations lest my readers should not believe the fact that, while awaiting in the hall of our hotel for dinner, one of the members of the Congress rushed in with the, to us, astonishing news that a man had been shot at the corner of our hotel. The crowd was so dense that we could not see anything when we hurried up, but the next morning we read in the papers that a negro had a quarrel with a white man, and shot him dead, and also shot three others who interfered with him. While the whole four were lying on the ground the negro escaped in the confusion, and was never found.

A few weeks before our arrival five desperadoes, wearing masks, held up and robbed the St. Louis express on the outskirts of Chicago. The passengers were for St. Louis, and while two robbers guarded the doors two others took all the passengers' money at the pistol's point, and struck with a hatchet those who were slow in obeying their commands. No clue was ever obtained of the perpetrators of this outrage.

We slept in the train at Chicago, and started for St. Louis at 10 a.m. on Sunday, arriving at St. Louis at 8 p.m. We put up at the Inside Inn, so named because it was *inside* the grounds of the Exposition. It was, of course, a temporary structure, built entirely of wood, but had over 6,000 bedrooms. The number of mine was 2,535, and that of Mr. Martin 5,428. Between 500 and 1,000 visitors to the Exposition arrived at the hotel every day, and about the same number left, yet everything went on like clockwork; you registered name, paid in advance, and found the luggage that had been sent on from New York days beforehand awaiting you in your bedroom. The refreshment departments were equally well managed; you entered a large room through turnstiles, paying the amount of your breakfast, or dinner, in advance. The extent of the Exposition covered an area four times the size of the largest exhibition previously held. The ground covered by buildings and exhibitions of all kinds was two miles long and one and a half miles wide, and to enable visitors to move quickly from place to place an intramural railway wound round and about for a length of twelve miles. All the varied industries of the world were represented here; every State of the United States had its separate building, exhibiting the various products, and apparently every nation on earth, from our greatest Empire to the smallest Republic of Central America, was similarly represented.

It would be impossible to describe the extent, the beauty, and magnificence of the building in a short paper such as this. The great pity of it all is the fact that, notwithstanding the millions that visited the exhibition, the financial result was an enormous loss, and it is therefore very unlikely that any other exhibition will be attempted on so expensive and colossal a scale.

I cannot omit to mention the remarkable kindness and attention for our comfort exhibited by all the Americans with whom we came in contact, and in this respect the exertions of Dr. Day, chairman, Dr. Wilson, director of the Philippines Exhibition, and Dr. MacCormack, the secretary, were simply overpowering in their efforts to make our visit at once instructive and a pleasure. I must also mention that amongst the many pleasant acquaintances I made, that of Mr. Eki Hioki, the first secretary to the Japanese Legation at Washington, was of the most delightful kind, resulting in our spending most of our time together from Washington to St. Louis, and in a letter received from him since my return he has sent me some photographs, taken by himself, as souvenirs of our pleasant companionship.

On September 23rd I bade good-bye to my colleagues, and started for Canada, on a visit to a son in Ontario. Owing to the short time we were in Niagara on our way to St. Louis, there had been no time to visit the most interesting works—the Niagara Falls Power Company, so on my return journey to New York I stayed at Niagara with my son, and after obtaining permission we were courteously shown through the undertaking. The intake of water from the river above the falls is 1,250 feet long, and from this intake there are twenty-one inlets and twenty-one turbines, through vertical steel penstocks into wheelpits 136 feet deep. There are ten 5,000 horse power and eleven 5,500 horse-power turbines, and the same number of generators and dynamos in the power house above. The turbines are connected with the generators above by hollow shafts of 2 inch metal, 38 inches in diameter, and 134 feet long. The company owns two miles of river frontage, and 1,100 acres of land, where various works are supplied with power, which is also distributed to Buffalo, Tonawanda, and other towns in the neighbourhood. The Buffalo terminal house of power is $22\frac{1}{2}$ miles from the Falls' power house. During the year 1903, if the total output of power supplied had had to be produced by steam, it would have required the consumption of 600,000 tons of coal, or 1,640 tons daily.

The Canadian Niagara Power Company, situated on the Canadian side, is adjacent to the falls themselves, and has at present eleven generators of 10,000 horse power each. Inter-connecting cables, with those of the Niagara Company, guarantee continuity of power service.

Leaving Niagara by tram, I passed for a portion of the way through miles of orchards to Buffalo, and thence took train to New York. Arriving at the Everatt House (Hotel) I found all my luggage, which I had sent by the Express Company from St. Louis, awaiting me, a system which seems to have been brought to perfection in the States. I had previously booked my return voyage by the Baltic, the largest steamer on the seas, and I was not disappointed in the extra comfort and freedom from pitching and tossing in a storm. In our cabin there was no motion whatever, though we passed through storms, the waves of which went right over the sun deck, 60 feet from the water. I cannot conclude my description of our visit without mentioning the excellent provisions for our comfort on board both the Majestic and the Baltic. One thing against which I would like to warn any intending visitors to the States is the habit of drinking iced water to every meal. I gave it up after the first day, and had good

English beer. Several of my colleagues who followed the custom of the country were anything but well, to say the least of it, and my friend, Mr. Martin, at dinner one day remarked, "Well, Mr. Gunsen's system seems to act." To emphasise this point I quoted the following from a paper by Dr. H. W. Wiley, in the "British Medical Journal":—

"Full many a man, both young and old,
Has gone to his sarcophagus
By pouring water icy cold
Adown his hot œsophagus."

I feel the imperfections of this paper, but if I have produced in this sketch-description of our travels any little interesting matter which is out of the beaten track of the general narrator, I hope such imperfections will be overlooked.

LIST OF INTERNATIONAL GEOGRAPHICAL CONGRESSES.

I.	Antwerp	...	...	...	...	1871.
II.	Paris	...	...	...	...	1875.
III.	Venice	...	...	...	...	1881.
IV.	Paris	...	...	...	...	1889.
V.	Berne	...	...	...	...	1891.
VI.	London	...	...	...	...	1895.
VII.	Berlin	...	...	...	...	1899.
VIII.	Washington	1904.

And the next is being arranged as follows:—

IX.	Geneva	1908.
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ANNUAL MEETING OF THE SOCIETY, 1905.

THE Twentieth Annual Meeting of the Society was held in the Lord Mayor's Parlour, Town Hall, on Wednesday, May 10th, 1905, at 3 o'clock in the afternoon.

The Right Hon. the Lord Mayor (Councillor T. Thornhill Shann, J.P.) presided, and was supported by the Rev. S. A. Steinthal, F.R.G.S., Mr Harry Nuttall, J.P., F.R.G.S., the Vice Chancellor of Victoria University, Colonel H. T. Crook, J.P., Messrs. D. A. Little, F. Zimmern, J. Howard Reed, Councillor J. Snaddon, N. Kolp, T. Gregory, F.C.A., T. W. Sowerbutts, J. J. Gleave, A. Goodwin, the Revs. F. A. Rees, J. Miller, A. Eustace, and others.

The minutes of the Nineteenth Annual Meeting, held May 17th, 1904, were taken as read, having already appeared in the *Journal*.

An apology for unavoidable absence from Mr. S. Oppenheim, J.P., was read.

Mr. J. Howard Reed, Honorary Secretary, read and explained the following report and balance sheet:—

REPORT OF THE COUNCIL OF THE MANCHESTER GEOGRAPHICAL SOCIETY FOR THE YEAR ENDING DECEMBER 31st, 1904.

THE work of the Society has been fairly maintained during the year, although very exceptional difficulties have been experienced.

It is with very great regret that the Council have to record in this report the death, in April last, of the late Secretary. Mr. Eli Sowerbutts was appointed a member of the Provisional Committee at a meeting held in the Mayor's Parlour, Town Hall, Manchester, on the 15th of October, 1884, and was elected as Secretary by the Council on February 4th, 1885.

During all these years, up to the time of his death, Mr. Sowerbutts was enthusiastic in the work and welfare of the Society, and its success hitherto has been mainly owing to the energy and devotion shown by him at all times.

The Council and the members scarcely yet realise that they will never have his cheering presence among them, but the knowledge of what he would have wished, and the recollection of the way he worked, have acted as an incentive and encouragement to do what has been possible to continue the work of the Society.

The Council report that immediately after the Secretary's death an Executive Committee was appointed to carry on the work of the Society in the intervals between the meetings of the Council. This Committee have held fortnightly meetings, and have conducted the affairs of the Society in as efficient a manner as was possible.

Owing to enforced re-building, temporary premises had to be secured in September, and after several meetings the Council decided to store the library in a house in Shakespeare Street, Chorlton-on-Medlock, and, by the kind permission of Mr. T. W. Sowerbutts, to make use of his office at the Coal Exchange for official purposes.

During the year meetings of the members have been held frequently; weekly during the early part of the year, and fortnightly during the latter portion. The subject matter of the lectures has been of a varied character, as will be seen from the following list:—

EUROPE.

"Modern Methods of Dealing with the Traffic at the Port of Manchester." Mr. J. B. Brown.

"The Isle of Man." Mr. H. C. Martin, F.R.G.S.

"St. John Baptist, Cirencester, and its 'Vice.'" Mr. C. H. Bellamy, F.R.G.S.

"The Region round Oxford." Mr. A. J. Herbertson, M.A., Ph. D.

"A Run up the Rhine." The Rev. F. A. Rees.

"Travels in Russia and Impressions of the Country." Mr. W. Barnes Steveni.

"A Week in Flanders." Mr. J. Howard Reed.

"Travels in Austria and Hungary." Dr. J. Murray Moore, F.R.G.S.

"A Journey in Sicily." Miss Ethel Heywood.

"A Visit to Portugal." Councillor Walter Butterworth.

ASIA.

"Japan." Mr. Abel Heywood.

AFRICA.

"The Island of Fernando Po." Mr. T. J. Nunan.

"The Development of West Africa." The Rev. P. A. McDermott, C.S.Sp.

"Western Uganda." The Rev. A. B. Fisher.

AUSTRALIA.

"A Pioneer's Experiences among the Cannibals of New Guinea." The Rev. Samuel McFarlane, LL.D.

ANTARCTIC REGIONS.

"National Antarctic Expedition." Captain R. F. Scott, R.N., M.V.O.

GENERAL.

"The British Mercantile Marine—Past and Present." Mr. M. W. Thompson.

"The Preparation of a Course in Local Geography." Mr. J. J. Cardwell.

"What is Geography?—the Teacher's Standpoint." Mr. E. W. Dann, B.A.

"The British Association at Cambridge." Mr. H. Yule Oldham, M.A., F.R.G.S.

"The International Geographical Congress, 1904 (Washington, Philadelphia, New York, Chicago, and St. Louis)," The Rev. F. A. Rees, Messrs. H. C. Martin, F.R.G.S., and W. Telford Gunson, C.E.

"Cowper and Olney." Mr. J. R. Smith.

The Council trust that the small attendance at some of the lectures was due to temporary causes.

The excursions arranged were fairly satisfactory, the most successful being that under the guidance and hospitality of our esteemed friend, Mr. Joel Wainwright. It is on occasions of this nature that the genial presence of our late secretary is especially missed.

The Council have during the year issued the Journal for the last nine months of 1903 and for the first three months of 1904. They regret that the funds available for publishing purposes have not permitted the issue of more parts of the Journal during the year, but trust that a large accession of members during the ensuing year may enable extra parts to be printed, and so accelerate the issue of the Journal and bring it up to date.

The Council regret that the loss by death during the year has been exceptionally heavy, and that so many of the older members and good friends of the Society have passed away. Among them may be mentioned—

Mr. E. Challender

Mr. W. H. Crabtree

Mr. W. J. Cunliffe

Mr. H. Dyson

Mr. T. Eggington, J.P.

Alderman E. Guthrie, J.P.

Mr. E. Helm

Mr. G. B. Jackson

Mr. T. R. Langtry

Mr. Hy. Lee, J.P.

Mr. Wm. Lee

Mr. Hy. Morley

Mr. Eli Sowerbutts, F.R.G.S.

Sir H. M. Stanley

Mr. J. P. Thomasson

Mr. John Thomson, J.P.

The additions to the Library, Map Room, and Museum have been very extensive during the year, being mainly in exchange for copies of our Journal, the exchange list consisting of about 270 home and foreign societies' and other publications.

The Council have great pleasure in announcing to the members that the geographical and historical portions (comprising about 1,500 volumes) of the private library of the late Secretary have been left to the Society, and will be available for the use of the members as soon as they have been catalogued and stamped. The Council are indebted to Mr. Joel Wainwright, J.P., for his kindness in undertaking to design a book-plate to be affixed to each of the above-mentioned books.

The Council are also much indebted to those corresponding societies which have shown kindness to the members who have visited them. Letters of introduction will gladly be furnished to members intending to visit towns where corresponding societies are situated.

Some few of our members have sent interesting and valuable letters from abroad, of which those from China, sent by Professor R. W. Swallow, may be specially mentioned, but the majority of our corresponding members are so only in name. The Council trust an improvement in this respect will be manifested during the coming years.

The Society has been represented at the congresses of two scientific associations during the year. Mr. H. Yule Oldham, M.A., represented it at the meeting of the British Association held at Cambridge in August, and gave his report to the members on December 13th, presenting at the same time a large number of publications issued in connection with the Cambridge meeting. Messrs. W. Telford Gunson, C.E., H. C. Martin, F.R.G.S., and the Rev. F. A. Rees represented the Society at the International Geographical Congress held in the United States in September. Full particulars of the proceedings were given in the reports presented by the delegates at the meeting held on December 20th.

The Society is much indebted for the hospitality shown to the delegates by the geographical societies of America. Special mention should be made of that shown by the American Geographical Society of New York.

The Education Committee of the Society drafted a resolution on the position of geography in examinations for the Government service, which was afterwards adopted by the Society and despatched to the departments concerned. The Council believe that similar action was taken by the other geographical societies of the kingdom, and subsequently an article appeared in the *Times* on this subject, entitled, "Geography and War," followed by a long discussion from early in November till after the close of the year. The Council hope that much good will result from these efforts, and trust that some way will be found to follow up the matter, and to press it forward in the proper quarters.

The Victorians have continued to give active service in many ways, but mainly in the lecturing department. Through the ill-health and death of their Chairman, Mr. Eli Sowerbutts, this portion of their work has been heavily handicapped. A report by their Hon. Secretary is presented herewith. The Society is greatly indebted to these gentlemen for their gratuitous and arduous labours, often given at great inconvenience to themselves.

The questions set in "Geography" by the late Secretary have elicited a few replies. These have been examined by the Hon. Examiner, Mr. J. D. Wilde, M.A., whose report is annexed. The Council gratefully acknowledge the continued services rendered by Mr. Wilde.

It is proposed to have some questions prepared and issued in the new year, and it is hoped that there will be an increase in the number of the replies. If not, the questions will have to be suspended, and some other way found to promote the study of geography among the children of the members.

The balance sheet for the year, with the Hon. Auditor's report, is presented herewith, and shows a rather unsatisfactory result, the previous deficiency being somewhat increased. This is due to the want of new subscribers to supply the place of those who are lost by death or resignation. There has been a reduction in the expenditure as compared with the previous year, but, unfortunately, the income

shows a still greater decrease. The Council trust that the members will make a strong effort to increase the roll of members, and thus enable the work to be carried on in an efficient manner.

The Council trust to have the support of all the members in their endeavours to carry on the work commenced by the late Secretary in such a way that it will serve as a lasting tribute to his memory, and will promote the study of the science of geography, in which he was so deeply interested.

THE REPORT OF THE HON. EXAMINER IN GEOGRAPHY.

Once more the course of time has brought me the pleasant duty of examining the answers of your young geographers and awarding to them the prizes for which they have competed. I regret to notice that again there is a decreased number of competitors, the number being now ten, and that the high level of the year 1902 has not been reached; but, on the other hand, the general average shows marked improvement. The remarks which I made last year have borne fruit, and the regulations more thoroughly carried out. No one over the age of sixteen has competed, and Class C has reappeared. Projection is more generally attempted, but still purely in a mechanical way. For this I can scarcely blame the young people so much as their teachers, as I have only found two men in my experience who have taught an intelligent system which is within the power of young people to put into practice. On the whole, however, the quality of the maps is much improved, the answers are to the point, and the spelling more accurate than on any previous occasion. I may also add with pleasure that only one competitor has failed to attempt every question.

Four sets of questions were set, and the maximum of marks was 200. The results are as follows:—

CLASS C. (JUNIORS.)

Fred Davenport	70	
Basil Worsley	97	<i>Prize.</i>

CLASS B. (MIDDLE.)

Arthur Appleton	60	
Frank Hollingworth	113	
Albert Davenport.....	170	<i>Prize.</i>

CLASS A. (SENIORS.)

Evelyn Harris	100	
Christine Harris	105	
James Faulkner	120	
John Eaton	145	
Fred Wood	155	<i>Prize.</i>

It will be seen that Albert Davenport has gained more marks than the highest of the seniors, and is entitled to the first prize if the committee think fit.

I cannot conclude without a brief reference to the sad loss which the Society has experienced since last I addressed you, in the death of Mr. Eli Sowerbutts, to whom the members and, not least, the children owe so much. Others may be found as able, but never one more devoted to the interests and welfare of the Society.

JAS. D. WILDE, M.A.,

Principal of Highbury House School,
St. Leonards-on-Sea, Examiner.

REPORT OF THE VICTORIANS, 1904-1905.

During the year the activity of the Victorians has again been mainly manifested in the lecturing department. Although the number of lectures given during the session under review shows a decrease as compared with former years, those that have been delivered were highly appreciated. A reference to the list below shows that about thirty addresses were given in various places in Lancashire and Yorkshire, all of which were illustrated by lantern slides. In order to increase the number of lectures, it is essential that the list of lecturers be strengthened, and the Victorians invite any of the members of the Geographical Society who are willing to aid in this educational work to send their names to the Hon. Secretary.

During the early days of January the Children's Annual Party was held in the Coal Exchange, when a large number of young people were entertained by the Victorians, and enjoyed themselves thoroughly. On that evening the prizes, for which the Victorians are indebted to Dr. W. J. Hoyten, were presented by Miss Nora Woodhouse, of Marple Bridge, to the successful candidates in the geography examination (see the Hon. Examiner's report preceding this). The usual Christmas cake was again provided by Professor Swallow, of the University at Tai Yuan fu, North China, to whom the assembly accorded a hearty vote of thanks.

Finally, the Victorians have to record an irreparable loss. Death has been exceptionally busy amongst the general body of members this year, and it is with deep regret they have to include in the number their revered Chairman, Mr. Eli Sowerbutts, who initiated this section of the Society many years ago, and did all in his power to make it a success. The Victorians will always miss his presence, guidance, and support.

The following is a list of lectures delivered during the season 1904-1905:—

October

25—Middleton (Literary and Scientific Society). "The Bay of Naples and Vesuvius." Mr. John R. Smith.

31—Farnworth-with-Kearsley P.C.M.I. Society. "Cotton Growing within the British Empire." Mr. J. Howard Reed.

November

- 3—St. Mark's, Cheetham Hill. "From Capetown to Cairo." Mr. J. Howard Reed.
- 9—Swinton (Eccles Co-operative Industrial Society). "From Capetown to Cairo." Mr. J. Howard Reed.
- 16—Whitefield. "Japan; the Land of the Rising Sun." Mr. J. Howard Reed.
- 28—Chadderton (Educational Committee). "Natural Phenomena—Volcanoes, Earthquakes, Geysers, etc." Mr. H. C. Martin, F.R.G.S.
- 28—Meltham (Carlile Institute). "Three Men in Ireland—From Larne to Donegal." Mr. R. Stewart.

December

- 7—Cadishead (Eccles Co-operative Industrial Society). "From Capetown to Cairo." Mr. J. Howard Reed.
- 12—Farnworth. "United States in 1904." Rev. Fred A. Rees.
- 12—Chadderton (Educational Committee). "From Capetown to Cairo." Mr. J. Howard Reed.

January

- 9—Hollinwood (Oldham Free Public Library Committee). "Canada." Councillor A. Y. Scholfield.
- 16—Urmston (St. Clement's Literary and Debating Society). "Glimpses of the United States." Councillor A. Y. Scholfield.
- 17—Greenacres (Oldham Free Public Library Committee). "From Capetown to Cairo." Mr. J. Howard Reed.
- 18—Eccles (Co-operative Industrial Society). "Switzerland." Councillor A. Y. Scholfield.
- 30—Chadderton (Educational Committee). "Japan; the Land of the Rising Sun." Mr. J. Howard Reed.
- 31—Middleton (Literary and Scientific Society). "Japan; the Land of the Rising Sun." Mr. J. Howard Reed.

February

- 8—Whitefield. "Canada." Councillor A. Y. Scholfield.
- 15—Patricroft (Eccles Co-operative Industrial Society). "The Wye Valley from Source to Sea." Mr. J. S. Reid.
- 20—Farnworth. "Earth's Sculpture; Natural Processes." Mr. H. C. Martin, F.R.G.S.
- 21—Whalley Range. "From Capetown to Cairo." Mr. J. Howard Reed.
- 27—Chadderton (Educational Committee). "Days in the Dukeries." Councillor J. Snaddon.
- 28—Middleton (Literary and Scientific Society). "The Wye Valley from Source to Sea." Mr. J. S. Reid.

March

- 6—Leigh (Literary Society). "Glimpses of the United States." Councillor A. Y. Scholfield.
- 7—Cheetham (Congregational Sunday School). "From Capetown to Cairo." Mr. J. Howard Reed.
- 27—Farnworth. "The Mahrattas and the Western Tableland of India." Mr. Ernest E. Lafond.

REVENUE ACCOUNT.

Dr.	YEAR ENDING DECEMBER 31st, 1904.	Cr.
	£ s. d.	£ s. d.
To Expenses of Meetings	105 15 4	
„ Journal, less Advertisements	114 15 11	
„ Rent, Gas, Water, and Insurance	80 4 3	
„ Salaries	109 6 0	
„ Books, Maps, Binding, and Library	6 11 1	
„ Sundry Expenses, Stationery, Postages, Telegrams, Carriage, Wages, Coal, &c.	85 16 6	
„ Commission and Expenses, New Members, and Collection of Subscriptions	9 11 6	
„ Education Committee's Expenses	1 17 0	
„ Repairs to Furniture	0 1 6	
	<hr/>	
	£528 19 10	
	<hr/>	
		£ s. d.
By Members' Subscriptions—		
Ordinary	438 18 0	
Associate	35 14 0	
Societies	29 8 0	
	<hr/>	
	504 0 0	
„ Bank Interest		0 16 3
„ Balance Deficit on Year 1904		19 3 7
		<hr/>
		£528 19 10
		<hr/>

BALANCE SHEET, DECEMBER 31st, 1904.

Report of Annual Meeting.

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LIABILITIES.		ASSETS.	
	£ s. d.		£ s. d.
To Subscriptions paid in advance	11 11 0	By Subscriptions in arrear	54 19 0
" Amounts owing to Sundry Creditors ..	219 16 9	" Cash at Bank	22 18 1
" Furnishing New Premises Fund	33 7 0	" Less Cash owing to Accountant	2 7 6
		" Balance at Bank on account of Furnishing Fund	20 10 7
		" Account owing.....	25 0 0
		" Balance deficit from 1903	0 9 6
		" Add loss on year 1904	144 12 1
			19 3 7
			163 15 8
	£264 14 9		£264 14 9

NOTE.—The Furniture, Fittings, Books, Maps, &c., in the Library, Stock of Journals and Lantern Slides are not taken into account as Assets in the above Statement. There are 31 Life Members, whose subscriptions have been taken as Revenue.

Audited and found correct.

THEODORE GREGORY, F.C.A.,
Honorary Auditor.

March 11th, 1905.

The Lord Mayor said he was sorry the finances were not in a more flourishing condition, and that he thought the Society ought to be supported by everyone who took an interest in the welfare of his country. Very shortly the Society would be entering their new premises, and he hoped the adverse balance would previously be cleared off and that a start in the new building would be made free from debt. Many young men would do well to spend some proportion of their time in the work of this Society. The library and geographical collection were extremely valuable, and the maps possessed by the Society were numerous and formed a unique collection, which could not be equalled in the city, and certainly could not be replaced.

The Rev. S. A. Steinthal, who moved the adoption of the report and balance sheet, said the losses by death during the year were exceptionally severe. The death of the Secretary was a particularly heavy blow. Mr. Steinthal went on to speak of the prospects of the Society in its new home now building. There will be a large library for the storage of books and maps, a lecture hall, and a comfortable members' room. He appealed for increased financial support, and said that if every member would only add one other member the Society would be placed in such a position as would enable it to do better work than it had yet accomplished.

Mr. Harry Nuttall, who seconded the adoption of the report and balance sheet, said the Society ought to have a thousand members to enable it to carry out its work, and he hoped that under the new conditions described by Mr. Steinthal that number would be reached.

This Society was the first Geographical Society established in this country outside London, and it would reach its majority in October next, and would then it was hoped celebrate the double event of its twenty-first anniversary and the opening of its new rooms in a suitable manner.

The Council would shortly make an appeal for funds for the furnishing of the new premises and for the extinction of the debt at present existing. Some members of the Council and of the Society had, in reply to a private appeal, started the fund in a handsome manner, over £100 having been already subscribed, and he hoped that the members would respond to the appeal very heartily, so that the objects can be satisfactorily accomplished, and so enable the Society to begin their work in the new building in a sound financial condition.

The Vice Chancellor of Victoria University, in supporting the resolution, spoke in hearty commendation of the Society's work, and of the importance of geographical knowledge. He believed that it was not too much to say that if our officers in the Boer War had had better maps, and been better equipped with geographical knowledge, thousands of lives and scores of thousands of pounds would have been saved. Many of our maps in England were still a disgrace to English civilisation; some were excellent, but we had a good deal to do to make them satisfactory. The Society took a constant interest in subjects of that sort, and took care that geography was not lost sight of in schools and colleges. Geography formed one of the most essential and important features of education at all stages. Properly treated, it should be the handmaid of most other subjects. The

history teacher should hardly ever teach without a map before him. One got a more vivid impression of scenes and incidents when the places where they occurred were pointed out on the map. He was convinced that in that way reality and accuracy was obtained, along with the cultivation of the imaginative faculties.

The Rev. F. A. Rees moved, the Rev. A. Eustace seconded, and it was unanimously resolved that the best thanks of the Society be given to the Council and officers for their services during the past year.

The Assistant Secretary reported that the Council recommended the addition of Messrs. J. F. Cheetham, M.P., and J. Howard Reed to the list of Vice-Presidents. Mr. J. J. Gleave then moved, Mr. T. Gregory, F.C.A., seconded, and it was unanimously resolved that the Council's recommendation be adopted, and that the following be elected as the Council and officers for the ensuing year:—

President.

His Royal Highness the PRINCE OF WALES, K.G.

Vice-Presidents.

His Grace the DUKE OF DEVONSHIRE, K.G.
The Right Hon. the EARL OF DERBY, K.G.
The Right Hon. EARL EGERTON OF TATTON.
The Right Rev. the LORD BISHOP OF MANCHESTER.
The Right Rev. the BISHOP OF SALFORD.
The Right Hon. the LORD MAYOR OF MANCHESTER.
His Worship the MAYOR OF OLDHAM.
His Worship the MAYOR OF SALFORD.
The VICE-CHANCELLOR OF VICTORIA UNIVERSITY
The Right Rev. MONSIGNOR GADD, V.G.
The Right Hon. A. J. BALF. UR, M.P.
Sir W. H. HOULDSWORTH, Bart., M.P.
HON. W. ROTHSCHILD, M.P.
Sir HUMPHREY F. DE TRAFFORD, Bart.
Sir FRANK FORBES ADAM, C.I.E.
Sir W. H. HOLLAND, M.P.
Alderman SIR BORDIN T. LEECH, J.P.
Alderman SIR JOSEPH LEIGH, M.P.

Sir WILLIAM MATHER.
Mr. FRÉDÉRIC BURTON.
Mr. J. F. CHEETHAM, M.P.
Professor T. H. COBB, M.A.
Professor W. BOYD DAWKINS, J.P., N.A., F.R.S.
Mr. J. G. GROVES, M.P.
Mr. E. F. G. HATCH, M.P.
Mr. J. S. HIGHAM, M.P.
Mr. HARRY NUTTALL, J.P., F.R.G.S., *Vice-Chairman of the Council.*
Mr. S. OPPENHEIM, J.P.
Mr. HERBERT PHILIPS, J.P.
Mr. J. HOWARD REED.
Mr. C. E. SCHWANN, M.P.
Mr. C. P. SCOTT, M.P.
Mr. H. SOWLER, J.P.
Rev. S. A. STRIKTHAL, F.R.G.S., *Chairman of the Council.*
Mr. J. D. WILDE, M.A.
Mr. F. ZIMMERN.

Trustees.

Mr. H. NUTTALL, J.P., F.R.G.S. Mr. SYDNEY L. KEYMER, F.R.G.S.
Mr. E. W. MELLOR, J.P., F.R.G.S.

Honorary Treasurer.

Mr. DAVID A. LITTLE.

Mr. J. E. BALMER, F.R.G.S.
Mr. JAS. BARNINGHAM.
Mr. G. T. BOWKE.
Mr. J. C. CHORLTON, J.P.
Mr. C. COLLMANN,
Consul for the German Empire.
Mr. H. T. CROOK, J.P., C.E.
Mr. E. W. GREG, J.P., F.R.G.S.
Mr. Councillor T. HAWALL, J.P.
Mr. A. J. KENNEDY, F.R.G.S.

Mr. N. KOLP.
Lady LEECH.
Mr. T. C. MIDDLETON, J.P.
Mr. J. L. PATON, M.A.
Mr. R. C. PHILLIPS.
Mr. Councillor JOHN SNADDON
Mr. T. W. SOWERBUTTS.
Mr. GEO. THOMAS.
Mr. H. WOOLLEY, F.R.G.S.

Honorary Secretaries.

Mr. F. ZIMMERN. Mr. J. HOWARD REED.
Mr. C. A. CLARKE (Victorians).

Mr. F. Zimmern moved, Colonel H. T. Crook, J.P., seconded, and it was unanimously resolved that the best thanks of the Society be tendered to Mr. Theodore Gregory, F.C.A., for his services as Honorary Auditor, and that he be re-appointed for the coming year.

It was moved by Mr. D. A. Little, seconded by Mr. J. Howard Reed, and resolved unanimously and with applause that the best thanks of the meeting be tendered to the Lord Mayor for the use of his parlour, and more especially for his kindness in presiding over the meeting.

A suitable response from the Lord Mayor brought the meeting to a close.

CORRESPONDENCE.

72a, Deansgate,
Manchester,
October 12th, 1905.

DEAR MR. SOWERBUTTS,

I have great pleasure in presenting this unique and interesting bit of Nankin China to the Society (see Certificate herewith).

Yours, &c.,
GEO. THOMAS.

[CERTIFICATE,]

This is to certify that this Cup was taken in 1876, with a quantity of other Nankin China, from the wreck of the "Götheborg," a sailing vessel wrecked near Elfsborg, near Gothenburg, in the year 1745, on her homeward passage from the East Indies (and China); the wreck had laid at the bottom of the sea from 1745 until 1876. *Vide* the shells formed on the Cup.

These facts can be confirmed by data at the Custom House in Gothenburg,

GEO. THOMAS.

September 1st, 1905.

PROCEEDINGS OF THE SOCIETY.

JANUARY 1ST TO JUNE 30TH, 1905.

The 688th Ordinary Meeting of the Society was held at the Coal Exchange, on Tuesday, January 10th, 1905, at 7-30 p.m.. In the chair, **Mr. J. HOWARD REED.**

The Minutes of the meeting held on Tuesday, December 20th, 1904, were read and approved.

The deaths of Messrs. Henry Lee and H. M. Steinthal were announced, and a resolution of sympathy with their relatives was passed.

Mr. R. N. HALL, F.R.G.S., gave an address on "The Ancient Phallic Temples of the Great Zimbabwe, Rhodesia, and the Land of King Solomon's Gold."

The address was illustrated with lantern slides prepared by the lecturer during his two years' exploration of the ruins.

Mr. N. KOLP moved, **Mr. J. HINDLE** seconded, a vote of thanks to **Mr. Hall** for his interesting address, and it was unanimously adopted.

The 689th Meeting of the Society was held at the Coal Exchange, on Saturday, January 14th.

The **VICTORIANS** received the children at 5 o'clock. The proceedings included music, songs, games, and lantern exhibitions.

During the evening, **Mr. J. HOWARD REED** described a journey of about 3,000 miles made by Professor R. W. Swallow from Tai Yuen fu to Hankow, Shanghai, and Ningpo, and back by Tientsin. (See p. 13.)

The address was illustrated by lantern slides made from photographs taken by Professor Swallow with the camera presented to him by the Victorians.

In the unavoidable absence of the Hon. Examiner, **Mr. J. D. Wilde, M.A.,** the Report on the Examination was read by **Mr. J. HOWARD REED.** (See p. 75.)

Miss NORA WOODHOUSE, of Marple Bridge, distributed the prizes. Afterwards, the cake, which had again been kindly provided by Professor R. W. Swallow, B.Sc., of Tai Yuen fu, Shansi, North China, was cut and distributed.

A hearty vote of thanks was passed to **Miss Nora Woodhouse,** Professor Swallow, **Mr. J. D. Wilde,** and the other friends who had assisted to make the evening a success.

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The 690th Ordinary Meeting of the Society was held at the Coal Exchange, on Tuesday, January 24th, 1905, at 7-30 p.m. In the chair, Rev. S. A. STEINTHAL, F.R.G.S.

The Minutes of the meetings held on January 10th and January 14th were read and adopted.

The election of the following members was announced:—

ORDINARY: Mr. C. W. Godbert. ASSOCIATE: Mr. Edgar Hollingworth. CORRESPONDING: Mr. A. J. Herbertson, M.A., Ph.D.

Mr. J. HOWARD REED addressed the members on "From Capetown to Cairo," illustrated by lantern slides.

Mr. JOHN R. SMITH moved, Mr. C. E. READE seconded, and it was resolved that a vote of thanks be given to Mr. Reed for his interesting address.

The 691st Ordinary Meeting of the Society was held at the Coal Exchange, on Tuesday, February 7th, 1905, at 7-30 p.m. In the chair, Mr. T. W. SOWERBUTTS.

The Minutes of the meeting held on January 24th, 1905, were adopted.

The election of the following ordinary members was announced: Mr. T. P. Murton and Mr. R. Fletcher.

An address by Mr. JOHN B. SMITH, on "Interesting Reminiscences of the Life of William Cowper (Poet): His Rural Walks in and about Olney, with quotations from his works," was read to the members present, and was illustrated by 100 lantern views.

On the proposition of Mr. C. E. READE a hearty vote of thanks was accorded to the lecturer.

The Annual Dinner of the Society was held at the Queen's Hotel, on Friday, February 10th, 1905, at 7 p.m. In the chair, Rev. S. A. STEINTHAL, F.R.G.S.

The Right Hon. the Lord Mayor, Messrs. Harry Nuttall, J.P., F.B.G.S., N. Kolp, D. Q. Henriques, Lieut.-Colonel Crook, J.P., Messrs. George Thomas, J. Howard Reed, Frank Mills, Councillor J. Snaddon, Messrs. F. Mehl, G. Blackburn, G. T. Cook, W. Telford-Gunson, H. C. Martin, F.R.G.S., J. Howard Bentley, T. W. Sowerbutts, and H. Sowerbutts were among those present.

After the usual loyal toasts had been honoured (the President, H.R.H. The Prince of Wales, being specially mentioned), the CHAIRMAN proposed "The City of Manchester," and gave some interesting reminiscences of his life since he first came to Manchester, more than seventy years ago, making special mention of the deterioration of the river water during that time.

The LORD MAYOR, in responding, said that earnest efforts were being made to cleanse the rivers and streams of the district, and should meet with some success in the future. He described the present stupendous character of the work of the Corporation, giving some information in detail of the proceedings of various committees. He remarked that the councillors were not always complimented on what they did, but rather

the reverse. They, however, persevered, and, taking things altogether, he did not think there were many cities governed better than Manchester.

The VICE-CHAIRMAN (Mr. Harry Nuttall) proposed "The Manchester Geographical Society." He referred with pride to the fact that he had been a member of the Society since its inauguration twenty-one years ago. He mentioned the attempt to form a Society in 1879, which undoubtedly prepared the way for the successful formation of this Society in 1884. Among the founders were Cardinal Vaughan (then Bishop of Salford), Messrs. John Slagg, J. F. Hutton, and Eli Sowerbutts. Others, in particular Mr. J. H. Nodal, gave great assistance in the preparation of the rules, etc. For the late Eli Sowerbutts the Society had a special regard, for he was a man who practically gave the best of his life to the Society. The first meetings were held in two comparatively small rooms at 44, Brown Street. After ten years' tenancy a removal was made to the rooms in St. Mary's Parsonage; and now, after a further period of ten years, a new building is being erected in place of the old one. The first idea of the Society was the cultivation of Commercial Geography; but with that it had combined Scientific Geography and everything of a literary character connected with Geography. The membership now numbered 600, but more members were required to do the work efficiently. The new building in St. Mary's Parsonage in process of erection would be completed in October, and would comprise a Lecture Hall, Library and Map Room, and a Members' Room, which he hoped would in time become a regular clubroom. The Society's Library would be a special feature in the new building, and was being enriched by the addition of about 1,500 volumes, forming part of the library of the late Mr. Eli Sowerbutts, which he had left to the Society. The library and map collection would be valuable for reference by scientists, traders, and students.

Lieut.-Colonel H. T. CROOK, in responding, made some humorous remarks on the incorrectness of some of the maps of the country, instancing especially the Peak District.

Mr. J. HOWARD REED, who also responded, spoke of the work of the late Secretary. He referred at length to the work done by the Victorian members of the Society in going about the country giving popular lectures on geographical subjects. The origin of the Victorians was really due to the late Mr. Eli Sowerbutts. In 1887 (whence the name) he gathered around him some of the younger members of the Society, and they drew and completed a large number of diagrams illustrating the commerce, etc., of the world, and had them hung in the Jubilee Exhibition. He also referred to the necessity for the formation of a fund to provide for the furnishing of the News Rooms and the liquidation of the deficiency in the accounts.

Mr. W. TELFORD GUNSON proposed the health of the Chairman, and mentioned the Chairman's travels in various parts of the world, and the splendid way he had worked for the Society. Mr. Gunson also referred to his own visit to the United States as one of the delegates to the International Geographical Congress, and related some of the most amusing of his experiences.

The CHAIRMAN, in responding, said that his heart was in the work, and that he considered that the Society was engaged in a very useful work, and trusted that it would be able to continue in an even more successful manner in the new buildings in the future than it had done in the past.

The CHAIRMAN read the following telegram from Mr. J. D. Wilde, M.A., St. Leonard's-on-Sea:—

"Regret enforced absence; wish my colleagues a pleasant evening.—
WILDE."

To which a reply was sent as follows:—

"Thanks for good wishes. — From LORD MAYOR and members assembled."

The 693rd Ordinary Meeting of the Society was held in the Coal Exchange, on Tuesday, February 21st, 1905, at 7-30 p.m. In the chair, Mr. H. C. MARTIN, F.R.G.S.

The Minutes of the meetings held on February 7th and February 10th were read and approved.

Mr. ERNEST E. LAFOND gave an address on "The Mahrattas and their Country." The address was illustrated with lantern views.

Mr. R. STEWART moved, Mr. W. HOLT seconded, and it was resolved that the thanks of the meeting be given to Mr. Lafond for his very interesting address.

The 694th Ordinary Meeting of the Society was held in the Coal Exchange, on Tuesday, March 7th, 1905, at 7-30 p.m. In the chair, Mr. H. SOWERBUTTS.

The Minutes of the meeting held on February 21st were read and approved.

The election of the following members was announced:—ORDINARY: Mr. A. J. Pidd and Mr. Eli Pidd. ASSOCIATE: Mrs. Eli Pidd and Miss Maggie Pidd.

An address was delivered by Mr. C. E. MOSS, B.Sc., on "The Botanical Geography of a Pennine Stream." The address was illustrated with lantern slides.

A vote of thanks to Mr. MOSS was moved by Mr. C. E. READE, seconded by Mr. WILLIAM TURNER, and passed unanimously.

The 695th Ordinary Meeting of the Society was held in the Coal Exchange, on Tuesday, March 14th, 1905, at 7-30 p.m. In the chair, Rev. S. A. STEINTHAL, F.R.G.S.

The Minutes of the meeting held on March 7th, 1905, were read and approved.

The election of Mr. Walter Speakman (Secretary of the Chamber of Commerce) as an ordinary member was announced.

An address was delivered by Mr. H. R. SYKES, F.R.G.S., on "Eastern Persia." (See p. 1.) The address was illustrated with lantern slides.

Mr. F. ZIMMERN moved, Mr. J. HOWARD REED seconded, and it was unanimously resolved, that the thanks of the meeting be given to Mr. Sykes for his address.

The 696th Ordinary Meeting of the Society was held in the Coal Exchange, on Tuesday, March 21st, 1905, at 7-30 p.m. In the chair, Mr. F. ZIMMER.

The Minutes of the meeting held on March 14th, 1905, were read and approved.

An address was delivered by Mr. HERMANN WOOLLEY, F.R.G.S., on "The Canadian Rocky Mountains."

The address was illustrated with lantern slides.

The Rev. F. A. REES moved, Mr. J. J. GLEAVE seconded, and it was unanimously resolved that Mr. Woolley be thanked for his address.

The 697th Ordinary Meeting of the Society was held in the Coal Exchange, on Tuesday, April 4th, 1905, at 7-30 p.m. In the chair, Mr. J. J. GLEAVE.

The Minutes of the meeting held on March 21st, 1905, were read and approved.

Mr. T. W. SOWERBUTTS mentioned the illness of the President, H.R.H. the Prince of Wales, and it was resolved that the sympathy of the members be conveyed to the President in his illness.

It was also resolved that a letter be sent to the Chairman, expressing the hope of the members for his speedy recovery; and that the sympathy of the members be conveyed to the relatives of the late Mr. E. Behrens.

The Rev. F. A. REES addressed the members on his recent "Experiences in America." The address was illustrated with lantern slides, some of which were specially prepared.

A vote of thanks to the lecturer was moved by Mr. W. TELFORD GUNSON, C.E., seconded by Mr. C. A. JOHNSTONE, and passed unanimously.

The 698th Ordinary Meeting of the Society was held in the Coal Exchange, on Tuesday, April 18th, 1905, at 7-30 p.m. In the chair, Rev. F. A. REES.

The Minutes of the meeting held on April 4th, 1905, were approved.

The Rev. R. D. DARBY addressed the members on the "Congo." The address was illustrated with lantern slides.

A vote of thanks to the Lecturer was moved by Mr. R. C. PHILLIPS, seconded by Mr. J. J. GLEAVE, and passed unanimously.

The 699th Ordinary Meeting of the Society was held at Marple, on Saturday, May 27th, 1905.

The members were met at Marple Station by Mr. JOEL WAINWRIGHT, J.P., who conducted the party through the lovely wooded private road leading to Oldknow's Bridge and House. The trees around this old and interesting dwelling were in magnificent condition, and formed a perfect bower of delight. The charming weather which prevailed gave a freshness and charm to the whole of the beautiful scenery which made it literally

perfect. The glories of the surroundings during this delightful walk were enhanced by the wealth of incident and lore which the genial leader was able to expound in his own most interesting and satisfying manner. The miles were all too short and the hours all too few. Passing round Oldknow's grounds, the party proceeded *via* Marple Bridge to Finchwood, where they partook of tea, amply and kindly provided by the best of all hosts. The fare was only equalled by the appetites of the party, and even these it conquered.

After tea, Mr. H. NUTTALL, J.P., moved, Mr. J. HOWARD REED seconded, and Mr. TALLENT-BATEMAN supported, a hearty vote of thanks to Mr. Wainwright, and the congratulations of the members present on his birthday.

Mr. WAINWRIGHT suitably responded.

The evening was spent in conversation, and in listening to the able elocutionary efforts of Mr. Wainwright, and of his son, Major Wainwright.

The visit of the Society to Marple in 1905 was certainly not the least successful or enjoyable of their many visits thereto.

The 700th Ordinary Meeting of the Society was held on Saturday, June 3rd, 1905, when a visit was made to the Ship Canal and to the Royal Botanical Gardens.

The members were met by Mr. DENNIS at the Broadway entrance to the Docks at 3 p.m., and led by him along the new dock, the different appliances provided for the efficient handling of the traffic being explained.

The party then proceeded by steamer to No. 8 Dock, alighting there and visiting one of the sheds, observing the unloading of a cotton steamer and the warehousing of the cotton in the shed. The view from the top was of a striking character, and gave one a good idea of the busy character of the Docks.

The members finally disembarked near Trafford Bridge, and, before leaving, Mr. J. HOWARD REED moved, Mr. HERMANN WOOLLEY seconded, a hearty vote of thanks to the Canal Authorities and to Mr. Dennis for their kindness and assistance during the afternoon, and it was carried unanimously. Mr. DENNIS suitably responded.

Some of the party proceeded to the Royal Botanical Gardens for tea, and, as it was the President's birthday, a telegram was despatched to His Royal Highness, sending their congratulations, to which the following reply was received:—

"Secretary, Geographical Society, Manchester. Prince of Wales heartily thanks members of Society for their kind congratulations.—A. BIGGE."

After tea the members were greatly interested in the contents of the greenhouses, etc.

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.



THE BOTANICAL GEOGRAPHY OF A PENNINE STREAM.

By C. E. Moss, M.Sc.

[Addressed to the Society in the Coal Exchange, Market Place, Manchester, on Tuesday, March 7th, 1905, at 7-30 p.m.]

MR. MOSS opened his lecture by a brief summary of the progress which has been made in the British Isles during recent years in the study of botanical geography.

In 1898, Mr. Robert Smith published maps, with accompanying descriptive papers, illustrating the geographical distribution of vegetation in Edinburgh (1),* and in North Perthshire (2). His untimely death threatened to put a stop to work thus well begun; but fortunately, his brother, Dr. Wm. G. Smith, continued it. Similar maps have now been published of parts of Yorkshire (3 and 4), Westmorland (5), and Fifeshire and Forfarshire (6). Other maps illustrating Somerset and the Peak District, Mr. Moss himself hopes to publish very shortly, and maps of the Cleveland District of Yorkshire, Hampshire, Kent, and other parts of the British Isles, by various authors, are already in advanced stages of preparation.

Previous botanical maps by British authors had illustrated the distribution of species: they were floristic maps. The present series illustrates the groupings—the natural groupings where possible—of *ensembles* of plants: they are vegetation maps. This distinction is important from many points of view; but for the present purpose it is only necessary to point out that vegetation maps are of value to both botanists and geographers, as from a vegetation map of a district may be inferred its climate, its rainfall, its soil, its products, its industrial pursuits, and its scenery.

Mr. Robert Smith owed his inspiration for this method of botanical geography to Prof. Flahault, of Montpellier, under whom Mr. Smith studied; and maps by Prof. Flahault (7) and Mr. Marcel Hardy (8)—another student of Prof. Flahault—complete the series of vegetation maps of the kind here indicated.

All good atlases publish one or more maps illustrating the chief vegetation regions of the globe, and they usually show forest regions

* The figures refer to the papers mentioned at the end of the article.

(tropical, deciduous, and coniferous), grassy plains (savanas, prairies, and steppes), and deserts (sandy, alpine, and tundra). The small scale of such maps prevents many other interesting vegetation regions being shown, such as jungles, swamps, and salt-marshes. On the other hand, the comparatively large scale ($\frac{1}{2}$ inch and 1 inch to the mile) of the recent British maps renders it possible to show a large number of the natural groupings—or associations—of plants. It has been found that plants of similar requirements grow together over areas where similar conditions of temperature, moisture, and soil obtain, and that such regions are dominated by one or a few social species. On the higher portions of the hills of the North of England there occur extensive peat-moors. Over the badly-drained portions of these



FIG. 1.—COTTON-GRASS MOOR OF THE PENNINES. COTTON-GRASS IN FRUIT. JUNE.

the cotton-grass is usually the dominant plant (Fig. 1): the portions that are by comparison well drained are dominated by heather (Fig. 2). Associated with the dominant species are other plants, much less abundant than the dominant species, but still plentiful: these are secondary or sub-dominant species. Still other species occur, which are dependent on the foregoing for protection, food, or support; these are dependent species. Such communities of plants are known as plant associations or plant formations, and the whole habitable surface of the globe may be regarded as being occupied by various plant formations.

Almost every district furnishes examples of a few such plant formations, and those districts which include hills, marshes, or the

sea-coast often furnish a great many. The following are the chief British plant associations that have so far been described; others exist, and will be described as the work of vegetation surveying proceeds.

ALPINE ASSOCIATIONS.—*Moss and lichen covered crags*, and *alpine plateaux, heaths and pasture* may occur from 2,000 feet upwards.

SUB-ALPINE ASSOCIATIONS.—*Cotton-grass, bog-moss, sedge*, and *heather* moors occur usually from 1,000 to 2,000 feet, and at lower altitudes in the case of lowland peat-bogs. *Bilberry* is dominant on rocky summits and edges. *Heather* and *grassy heaths* occur on the slopes of the higher hills, and on the summits of the lower hills.



FIG. 2.—HEATHER MOOR OF THE PENNINES. HEATHER IN FLOWER.
SEPTEMBER.

Natural pasture (with no heath plants) occurs in chalk and limestone districts.

WOODLAND ASSOCIATIONS.—*Birch woods* occur at higher altitudes than any other kind. In Perthshire they ascend to about 2,000 feet. On the Pennines they occur up to about 1,250 feet. *Pine woods* occur naturally only in the Scottish Highlands, up to about 1,800 feet in Perthshire. Natural pine woods are absent from the Pennines. *Oak woods* are by far the commonest of the natural woods of England. They do not as a rule occur higher than 1,000 feet. *Ash woods* appear to take the place of oak woods in certain limestone districts—*e.g.*, in Derbyshire, and possess a similar altitudinal range. *Beech woods* have not been met with in the districts hitherto surveyed; but they possibly occur on the chalk in the south-east of Britain.

LOWLAND ALLUVIAL FORMATIONS.—These include several aquatic and sub-aquatic associations of ponds, bogs, and swamps.

MARITIME FORMATIONS.—These include several associations found on dunes, in dune-hollows, on mud-flats, and on rocky headlands.

THE REGION OF CULTIVATION.—In Britain, as in all settled and civilised districts, this occupies the bulk of the ground. It must be regarded as an annexation by man of land originally occupied by heath, swamp, or forest. Still, it includes isolated patches of primitive plant associations, and in itself provides material for the study of certain economic, phyto-geographical problems, such as the factors which determine the cultivation of wheat and other cereals. Plantations of conifers, and of deciduous trees, and park lands occur here, and, though quite artificial in origin, their presence may, in the absence or paucity of more suitable material, be utilised to indicate the resources of the district in which they occur.

Dealing with the immediate subject of the lecture, Mr. Moss traced the course of a typical Pennine stream from the point where it enters the plains upwards to its source on the moors. The various plant associations were illustrated by photographic illustrations* thrown on the screen.

The natural woods through which the Pennine stream passes are dominated by the oak. They occur from about 1,000 feet downwards. In the narrow valleys or cloughs, the woods usually occur on the slopes, and rarely rise to the open upland. As the valleys widen out, the oak woods are still mainly confined to the valleys, but emerge more from them.

Three types of oak wood may be recognised. The lowland or damp oak wood occurs below about 500 feet. The upland or dry oak wood occurs chiefly above this altitude, and extends upwards to 900 or 1,000 feet, where it merges into clough thickets of stunted oak, birch, and willow.

Lowland Oak Woods.—On the Millstone Grit, woods of this type are confined to the valley bottoms below an altitude of about 500 feet, but throughout the wider valleys and lower altitudes of the Coal Measures they are of greater extent. The woods seen in traversing the area by railway are usually of this kind. The oak is still a dominant tree, though the sycamore and wych elm frequently share dominance. Ash, beech, and alder are less common, but still frequent, while horse chestnut, sweet chestnut, poplars, the larger willows, and conifers are occasionally planted. Where beech is planted in quantity the undergrowth is obliterated (Fig. 5). The loose canopy of the oak wood favours a thick shrubby undergrowth (Fig. 3), which, however, does not include a large number of species. This undergrowth may form a loose thicket of small shrubs. In shaded parts, such familiar plants as the bluebell, anemone, primrose, orchis, and campion carpet the ground.

Upland Oak Woods.—These occupy dry rocky slopes on the Millstone Grit area. The oak is usually dominant; but when the best of these trees are removed and no others planted, the birch becomes

* The photographs were taken by Mr. W. B. Crump, M.A., of Halifax, and the illustrations used in this article are also from Mr. Crump's photographs.

dominant, either alone or mixed with stunted oaks. There is reason to believe that before the expansion of the cultivated land to its present limits, the upland oak wood must have formed a well-marked zone of primitive forest, following the course of the valleys; but as disforestry has gone on without much attempt at replanting, the existing woods are only the meagre remains of this. Where replanting has been attempted, mixed plantations may occur on the site of the previous oak woods. In such cases, the Scots and Austrian pines,



FIG. 3.—THE UNDERGROWTH OF AN OPEN OAK WOOD. MARCH.

spruce, larch (occasionally), sycamore, and beech are found in varying proportions; and all (except perhaps the larch) do well if suitable precautions are taken. Bracken (Fig. 4), bilberry, or rough grasses often carpet the ground in upland oak woods, while the rocky edges of open parts are not uncommonly covered with heather and some of its associates.

The Clough Thicket.—The moorland plateau of Millstone Grit finishes in a precipitous edge; and the waters from the moor, gathered into narrow but well-marked streams, descend abruptly over this edge,

excavating it backwards and downwards to form a gorge, with a steep head and steep rocky slopes littered with weathering sandstones and shales. These gorges are locally known as "cloughs." On the Mountain Limestone they are usually termed "dales." The abrupt change in altitude and environment is at once perceptible in the vegetation, which changes rapidly from that of the moor edge to a loose thicket of shrubs and low trees, in many respects stamped with the characteristics of a wood. The typical clough is not crowded with tree vegetation; but trees and shrubs are abundant enough to form a loose



FIG. 4.—HERBACEOUS UNDERGROWTH OF AN UPLAND OAK WOOD.
BRACKEN IN SEPTEMBER.

thicket or scrub, sometimes dense enough to be regarded as a wood. The following constitute the scrub of the clough :—

Oak.
Birch.
Mountain Ash.
Holly.
Hawthorn.
Blackthorn.
Bird-cherry.
Willows.

Honeysuckle.
Bramble.
Rose.
Bilberry
Ling or Heather.
Heaths (two spp.).
Broom.
Gorse.

The arrangement of these elements varies from place to place. Here the taller trees and shrubs may be thickly clustered, there gorse; in other parts bilberry, heather, or bracken covers the ground. The herbaceous vegetation is rich, and includes several rare or local species. Parts of the clough are wet, and clough-swamps are typical of the Pennine stream.

The upland oak wood is usually dry and rocky, and deficient in humus; the lowland oak wood is damp, shaly, and richer in humus.



FIG. 5.—EFFECT OF BEECH ON THE UNDERGROWTH.

The shade cast by the trees is much greater in the latter than in the former. Hence the flora of the latter is much richer in shade-loving species, especially of the bulbous and early flowering kinds; while the flora of the upland oak wood contains a high proportion of late-flowering moorland plants, which are practically absent from the lowland oak wood. The clough thicket partakes of the moorland type of vegetation even more than the upland oak wood.

Above the woodland zone the course of the Pennine stream enters the moors. The moor edges and the isolated outlying flanks furnish

examples of heaths, either dominated by rough moorland grasses, or bracken, or heather. Gorse and rush occur as sub-dominant plants. The grassy heaths are found chiefly on the steeper slopes, and in some of the precipitous cloughs where the natural timber has disappeared. Extensive grassy heaths are found above Lyme Park, near Disley. The heather, as a dominant plant, is practically confined to those moor edges whose slope is much more gentle (Fig. 2), and to the upland portion of many cloughs which penetrate into the heart of the Pennines. The edge of the moors between Glossop and Hayfield furnish the most extensive heather moors near Manchester.

The greater part of the Pennine moors is dominated by the cotton-grass or cotton-sedge (Fig. 1). This plant, with its associates, extends



FIG. 6.—A BILBERRY SUMMIT.

in monotonous tufts for miles, and in this latitude forms the backbone of "the backbone of England" itself. The cotton-grass flourishes best on the almost flat moor summit, where the rainfall is high, the drainage bad, and the peat thick and permanently wet or damp. These moors are locally known as "mosses." The vegetation of the area is extremely scanty in number of species, though one plant, the cloud-berry, is almost confined to this formation, and does not occur below an altitude of about 1,500 feet. Such tracts are usually most monotonous in appearance. In autumn and winter the reddish-brown leaves of the cotton-grass present a dreary aspect. Some life is infused into the area in early spring, when the dull florets make their appearance. In early summer the masses of white fruits form snow-like patches from a considerable distance, and every lover of

nature ought to visit the moors at this time of the year. The delicate white flowers of the cloudberry brighten up smaller areas about the beginning of June. Featherbed Moss, east of Glossop, is a good example of a cotton-grass moor. On the bleak, exposed summits and rocky "edges" of the moor, the bilberry is the dominant plant. On the Grampians and other Scotch mountains this plant is dominant or sub-dominant over very extensive tracts. On the Pennines the bilberry summit (Fig. 6) and the bilberry "edge"—*e.g.*, Kinderscout—is characteristic of rocky, steep, dry, and wind-swept situations.

It is among the cotton-grass moors that the typical Pennine stream takes its rise, the peat acting as a natural sponge, giving it an almost constant supply of water. Many town and city corporations utilise



FIG. 7.—RESERVOIR AMONG THE MOORS.

this property of the peat moors to supply reservoirs (Fig. 7) situated in the heads of most of the cloughs. The moors themselves are given over to sportsmen, who have grouse driven to their guns for a few weeks in autumn. Attempts have been made here and there to re-afforest the moors with timber trees, chiefly pine, beech, and spruce. Most of these attempts are failures, some dismal failures. There can, however, be little doubt that many portions of the uncultivated wastes of the Pennines would, by the application of sounder methods, yield good timber. The use of peat as fuel on the Pennines has almost died out, though there is enough peat on the Pennine moors to last the whole hillside population for a thousand years.

The above sketch applies to the Pennine stream which flows over the sandstones and shales, of which the bulk of the Pennines are

formed. On the Mountain Limestone, which is well represented in Derbyshire, oak woods are absent, and are replaced by woods dominated by the ash. Cotton-grass moors are also absent. Heather moors and heaths are much scarcer than on the sandstones and shales, though by no means absent. The steep slopes of the upland limestone dales are covered by natural pasture, where heath plants are absent, and where plants characteristic of calcareous soils are abundant.

[N.B.—Thanks are due to the Editor of the *Geographical Journal* for Figs. 1, 2, 3, 5, 6, and 7, and to the Editor of the *Geographical Teacher* for Fig. 4.]

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[Since the delivery of the lecture, a vegetation map of a portion of County Dublin, by Messrs. G. H. Pethybridge and R. Lloyd Prager, has appeared. See *Proc. Roy. Inst. Acad.*, Vol. XXV., Section B, No. 6, 1905.]

LIFE ON THE CONGO.

Notes of a Lecture by Rev. B. D. DARBY.

[Addressed to the Society in the Coal Exchange, Market Place, on April 18th, 1906, at 7-30 p.m.]

PRIOR to 1877 that great slice of Africa lying between 5 deg. north latitude, 10 deg. south latitude, and 30 deg. east longitude and the Atlantic Ocean was practically unknown land. Some little was known of the coastline for hundreds of years before then, but the interior was a blank. And so it very largely remained until Stanley published the account of his journey down the Congo in "Through the Dark Continent." The discovery and exploration of that river and its great tributaries—the Wellé, Aruwimi, Kassai, Kwango, Juapa, Lulongo, etc.—has practically filled up the blank on our maps, and the unknown has become largely known.

This work, one is glad to think, has not been done by any one nation. France sent Crampel, François, and De Brazza. Germany is represented by Schweinfurth, Junker, Weissmann, and Emin. Portugal sent Capello and Ivens among others. America sent Stanley, though Wales claims him as hers. England is most worthily represented by my former colleague, the Rev. George Grenfell, who a few years ago, because of the extent and value of his discoveries in Congo, received the highest award of the Geographical world, viz., the Patron's medal of the Royal Geographical Society. Scotland is sure to have a large part in all worthy effort, and she completes and crowns the whole with David Livingstone.

The whole of the territory above referred to occupies an area of over 1,000,000 square miles, and is almost wholly drained by the river Congo and its various tributaries. On the north bank there is the great tributary Oubangi-Wellé, drawing much of its water from the Southern Soudan. Further to the east, and still on the north, you will see the Aruwimi, so closely associated with Stanley's last journey. South of the main stream we have no end of tributaries, some taking their rise 12 deg. south of the Equator and near to the head-waters of the Zambesi. Look at the Kwa, with the Sankulu, the Kassai, the Kwango, and other streams falling into it and bringing to the already mighty Congo a huge volume of water. A glance at the map will show you that the whole of the area is intersected with watercourses innumerable. How much this has facilitated the exploration of such a vast territory will be obvious to all.

The purpose of this lecture is to take you rapidly along the main stream from its mouth to a point some 1,400 miles into the interior. We notice that so great is the volume of water brought to the sea by the Congo that its colour is seen in the ocean more than 200 miles away from its mouth. Soundings have shown that it has eaten out a channel more than 4,000 feet below the ocean bed. As a matter

of fact, the Congo is, in point of volume, the second largest river in the world, bringing more water to the ocean than any other river except the Amazon. Its length is some 3,200 miles.

We arrive at its mouth by steamer, from Antwerp say. Here, on a tongue of sand, is Banana. Ocean-going steamers formerly discharged their cargo here, whence it was transhipped to smaller craft, and by them carried up the river. Now these steamers, or such of them as have sufficient horse power to stem the current of the great river, sail up stream to Matadi—about 100 miles. On the way we pass Mboma, the seat of the Government of the Congo Free State, and the residence of the Governor-General, etc.

Arriving at Matadi, we land. A little further up river the cataracts begin, and for over 200 miles the navigation of the river is impossible. We want to get to Stanley Pool, and, in order to do so, we can nowadays take the train from Matadi. A very good narrow-gauge railway has been built. Enormous engineering difficulties had to be overcome, and they have been overcome most successfully, and a very fine piece of work attests the skill of the engineers employed.

But in the days when the writer lived there (1886-1895) there were no railways. The journey from Matadi to Stanley Pool had to be performed on foot, and when one was feeling "fit" it was a very delightful experience. The members of such a society as this are no doubt familiar with the methods of African travel, but suffer a few words on this.

Let us suppose we are going to make this journey. How shall we set about it? Remember that we are going into a land where there are neither hotels nor shops; where the houses are simply grass huts, where the food to be got is not such as the ordinary European is accustomed to, etc. Obviously provision of various kinds has to be made. Tents have to be looked out and examined; beds, cooking pots, tinned provisions; goods of various kinds for barter *en route*—for occasionally one may be able to purchase a few skinny fowls, or an even skinnier goat—sweet potatoes, yams, ground nuts, palm nuts, etc. When the traveller has sorted out and bundled up his goods into more or less convenient loads of 60 to 65 pounds, he finds himself with an amount of *impedimenta* that makes him wonder how he is to move.

Meanwhile he has been looking out for carriers. Messengers have been to this village and that, announcing that a white man is going into the interior and wants so many men to carry his goods. Who will go? Sometimes it takes more than *one* week to get sufficient carriers to enable one to start. When they have been got, there is often a good deal of trouble in getting each one suited with a load. But at last all is ready. It is well to make but a short journey—say two or three hours—on the first day, and then camp, and so get all clear away from the starting-place and ready for an early start next day.

Next morning, ere day breaks, we are off. Keep the man with the cooking pots and the "chop" (food) box in front of you if you want your lunch when you reach camp. Have the same regard to your tent and bed load in the afternoon, for sometimes these carriers meet "friends" on the road, and sit down and have a chat, and forget

how time flies. Occasionally one carrying a very necessary part of your baggage makes a detour, and you do not see him for two or three days. So keep your eye upon such necessities as food, tent, bed clothes, and cooking pots.

We have only a narrow road to traverse, not more than 2 feet wide, for the carriers always march in Indian file—one abreast, so to speak. If the grass has not been burnt we shall find it 8 to 12 feet high in some places, and very troublesome indeed. If it is the dry season in which we are travelling we shall not have much trouble in crossing the stream; but we must make very careful inquiries as to how far it is to the next "water," or we may find ourselves with the night approaching and no water anywhere near. One soon gets to know these and many other things, which make the journey very pleasant or otherwise.

We do not pass many towns. There used to be a much larger number, but some of those who passed by occasionally picked up what was not theirs, and so the natives moved their villages away from the caravan route. At odd places there are shelters built for the use of the carriers. Here, too, one may get a fine crop of fleas, "jiggers," and other undesirables. As a rule pass these places by.

Some days our journey is full of trying pieces of road. We shall not forget the climb to the top of the Ekonga di Elemba Hill, nor that day which included Mazamba. Who that once crosses the Nzaddi Nkisi will forget those canoes!—or cease to wonder how he lives to say that he *did* cross? But there are fine stretches of country with scenery worth looking at. There are long level stretches on the plateau, there are charming shady places at the Luvu. Mfumu Mbe is here in his town to meet and welcome us, and to give, so that he may have at least twice as much given in return. There is plenty to interest and amuse if one has eyes to see; and if he has not he had better stay in the land where travelling is easier. And then when night comes and the tent is pitched and dinner is over, the big camp fires are burning, and the carriers are sitting around telling "yarns"—"wonderful yarns"—of their experiences with the various white men they have travelled with. Oh, yes, ladies and gentlemen, you can have what our American friends call a "great time" on this land journey. But if we linger long over it we shall not get to Stanley Falls to-night.

At last we reach Stanley Pool, some 320 miles from the coast. Here the river becomes navigable for steamers of light draught. We can sail along the main stream for 1,100 miles to Stanley Falls. If we wished to visit all the tributaries of the Congo we have no less than 10,000 miles of navigable waterway away to the east of us. But we are going to Stanley Falls only. How shall we journey? Once upon a time, and that not very long before we first arrived there, canoes were the only means at our disposal. We have travelled hundreds of miles in these canoes; and they have their advantages, but they have many more disadvantages. When we could do no other, we used canoes; but now we have steamers, so we leave the canoe to the natives.

Here is our little steamer lying at the beach at Kintamo. Look well at her. She is not very big—just 70 feet long and 7 or 8 feet

beam. She was built in London and sent out to Congo in about 800 pieces. These were carried by men over the 200 and odd miles of the land journey already described. After being bolted and rivetted together the little vessel was launched, and right nobly she has done her work. In her Mr. Grenfell has made practically all his voyages of discovery and exploration. It is probable that she has sailed over more of the Congo waters than any other steamer. We are going on board of her for our 1,100 miles' trip. Here is her crew. They are a mixed lot—mostly Bobangi. That is a Bangulla, this is a Loango, this is a man from Cameroons. You will see that we need a good many men for such a small craft. That is because our fuel is wood. Most of these men are wood-cutters.

As we sail along we find plenty to interest us. Here is a herd of hippos. Yonder on the sandbank is a great crocodile; we have shot them so much as 16 feet long. Now we are close inshore, and on the trees are hundreds of monkeys, parrots, and birds of varied and gorgeous plumage. Here is a picture of one of our stopping-places. Look at this group of trading canoes! Umbrellas were just then very popular. See them tied to sticks and fastened among the bales of merchandise. They are of all colours, and are generally folded up and put carefully away when it comes on to rain! A number of canoes leave the beach and make for our steamer. They have goats, fowls, bananas, plantain, yams, etc., to sell, and want in exchange cowries, beads, brass rods, cloth, and the like.

Look at this group on the bank. They are gathered to watch the steamer load and to discuss the white man and his belongings. Here is another group. Do you see that big piece of carved wood, 5 feet high, 4 feet broad at least, and 2 feet thick? That is a drum, and it is used for sending messages. This man, by means of taps with his drumstick, sends word along that there is a steamer coming, with *so many* white men on board, and various other items of news that may interest his friends. Messages are sent by this means across the river or for certain distances inland, but mostly on the river. A canoe passing a village will announce its approach, its place of destination, and its reason for not stopping by means of these taps on the drum. It is not a bad substitute for telegraphy. So we pass on. There is plenty to interest and instruct us, plenty to make us wonder, plenty to make us sad.

Here, at last, we reach Stanley Falls, and the navigability of the river is impeded for about 150 miles. We have come 1,100 miles, and have "crossed the line," among other things.

Now let us come into some of the towns and see where these people live. We have now in our minds principally the Bobangi peoples, their towns, manners, and customs, for it was among those that we lived. To obtain some idea of one of their villages—just imagine one street, with houses on both sides. There is the fire with the pot on, boiling cassava. Here are the women under palm-trees pounding and cleaning the soaked cassava root. They knead it up into balls, and presently they will tie some leaves around it and boil it. This cassava pudding is the bread of these people. (It is like apple dumplings without any apples or salt in them.) You can

get to like it. It is certainly very nourishing, and, though it looks a very heavy and indigestible mixture, it is really easy of digestion. Tapioca is made from cassava, but between tapioca pudding and cassava pudding there is a great gulf.

The native is not a vegetarian, except under compulsion. He likes meat—elephant, buffalo (not bison), hippopotamus, monkey, wild boar, leopard, crocodile, *all* help to furnish his table. He will eat almost anything. His principal food, however, next to cassava, is fish. The river furnishes him with abundance. He smoke-dries it in order to preserve it; if it gets a few maggots in, so much the better. Palm oil and palm nuts, maize, ground nuts, bananas, locusts, certain forms of caterpillars, etc., all add to his bill of fare.

In some districts we found cannibalism very common in the early days; but nowadays it is becoming a very rare thing to see, or even to hear of, cannibal feasts.

Let us come into this house. It is only one storey. The bare earth forms the floor. In the corner is a mat on which the occupant sleeps. This small inner room is a sort of bedroom. There are no windows. The door is not very large—you must go in head first—it is less than 3 feet high. From floor to ridge pole is 7 to 8 feet, the width about the same, and length 16 to 20 feet. The whole house is built of grass and bamboos tied together with cane. There is not a nail used in its construction, and the roof and walls are all of the same material. They are not uncomfortable, but might with advantage have more air and light.

Here is a square! In that house at the end the chief lives. His wives live in the others. He may have any number. If he is very wealthy the number of his wives is sometimes as great as 40. It used to be said that Mpuki, one of the chiefs at Lokolele, had 47.

We have not time to look about the town any further. Exigencies of space demand that we can only regret our inability to refer to the social customs of the people, their methods of warfare, births, marriages, and deaths. We should need several more pages if we were to say anything about fetichism—their religion. And the whole issue of the journal would not contain what might be written if we were to tell of our pioneering and establishing the first mission stations among these people. "But that is another story," as Kipling would say.

Meanwhile, we hope that these hurried notes will have given some idea of the lecture and of what "*Life on the Congo*" was intended to cover.

GEOGRAPHY IN SCHOOLS.

By H. C. MARTIN, F.R.G.S.

[Addressed to the Society in the Whitworth Institute, on Saturday, July 1st, 1905.]

DURING the last few years there has been a great advance in all phases of geographic teaching, and this is especially so in our elementary and secondary schools. Many teachers take a keener interest in, and show greater enthusiasm for, the study of the subject, probably because they are beginning to appreciate the value of geography in the training of children in the habit of intelligent and accurate observation, and because the subject offers such facilities for reasoning, and tracing out cause and effect. There is, perhaps, no failure in teaching more serious than the failure to generalise. The character of some subjects, and the method of instruction, make them specially liable to such omission, and geography is very apt to suffer from the teacher's neglect to organise and generalise. In a deductive science, like geometry, every conclusion is a general truth, not only applicable to, but necessary in, any further development of the subject. Each conclusion is a premise in a succeeding theorem. In an inductive study more responsibility is placed upon the teacher; and because geography is so extensive and varied, and because its nature, its phases, and its value have been so little appreciated, it has suffered from want of organisation more than most of the ordinary subjects taken in school.

Text-books are better in many respects. They are more correct, better illustrated, and far more interesting. There is, however, much room for improvement. Schemes of geography and text-books still contain much that is of little value except to the expert advanced student; and many of the books are still of the encyclopædia type—including all that is known about all phases of geography.

The reform in text-books that seems most needed is to rid them of masses of useless details. There is an almost irresistible tendency to over-elaboration in every branch of study. The text-book maker wishes to put in everything that any teacher may be expected to look for, and the teacher makes an attempt to teach all in the book. In this way the teacher and the text-book maker react the one upon the other to bring about a congestion of details which is burdensome and useless to the child. Lists of rivers, mountains, towns, bays, capes, heights of hills, lengths of rivers, imports, exports, etc., may be good for training the memory, but as geographical facts they are of little value unless their relationship in the various regions is understood. They are only worthy of attention because they have a relation to man upon the earth. Of course, conceptions of these are necessary, but mere definitions fail to produce vivid and accurate impressions. In all our work as teachers we need to change our aim from the imparting of masses of knowledge to the development of mental power; and this will require much simplification in the material

presented for instruction, with less appeal to the memory and more to the observation and reason.

It always seems strange to me that, with all the advancement that has been made in science, all the improvements, such as they are, in educational work, there is no scheme of work in geography one can select as the best that can be devised—an ideal course. The vast number of suggestions from geographers and teachers is still more or less a chaos. There is no agreement as to what are fundamentals and necessary, and hence the indecision on the part of teachers as to what is best for their classes. We need to draw together, and not continue to scatter our efforts. I do not advocate drawing up a course of study so stereotyped that the teachers would be mere machines patiently grinding out the lessons in a mechanical way; although I believe it possible to evolve a perfect scheme, and that the freedom of the teacher should appear in the method of teaching rather than in the selection of the subject. We say science is organised common sense, and certainly geography is a science. It is the foundation of all natural science, and, when properly taught, it gives a more intelligent idea of life in its various aspects, of the influence of environment on the habits and conditions of life, and of the natural laws shaping out the destinies of man and the earth than any other subject. For this reason more time should be given to the study of geography; the best possible course should be devised; the most educational principles adopted; and, so long as examinations are common in our public schools, a higher number of marks should be given for the geography paper than is done at present, as this would ensure more careful attention to the subject.

Mr. H. R. Mill says: "Even to know where the places one reads of are, what is their climate, and how they are peopled is something; but, taking the wider view of geography as a science which aims at explaining the adjustment of people to the land, there is scarcely a problem of past history, or of present politics and economics, in any country which cannot be elucidated by the application of its principles." Viewed in this light, geography may be considered as the science dealing with the study of the earth in relation to man—how people live in the various parts of the world. This implies three classes of facts, with the relation in which they stand to each other. The first deals with the earth in its present condition as an inorganic body, including its crust; its topography, rocks, soils, minerals, the air, water, animals, and man. The second deals with the natural development of the earth's surface, and the forces which have influenced it mechanically and chemically. The third deals with life and its development, as fostered by particular combinations of local influences, from the lowest order to the highest type—from the savage to the civilised state—from nomadic tribes to fixed populations—from marauding warfare to the competition of trade.

It is only as these facts are understood that their relationship can be studied, and this relationship is the soul of geography. The items in geographical books then become examples of the relationship established in a certain area between man and his natural environment, and not so many absolute, empirical statements. Scores of examples could be given to show how natural resources and environment have

eventually determined man's residence and occupation; and this study of adjustment is one of the most interesting and fruitful phases of geography and emphasises strongly the rational element. Professor Dryer recognises the rational side of geography in the following definition: "The business of geography is, first, to determine accurately the distribution of each and all the factors of geography—land, water, air, plants, man; second, to discover the causes which have brought about the distribution of each; and third, to explain the relation of each group of factors to all the rest."

In more advanced work the pupils should be led to see that plants as well as animals respond to environment; and then geography becomes the study of the earth in relation to life. All the elements of controlling environment are arranged under the heading of physical geography, or physiography; while all the examples of organic responses form the other part of geography, called ontography. There are many relations in each of these divisions, as well as between them; but, in all cases, geography is concerned with the relation into which its facts enter, rather than with the facts isolated and alone.

Taken as a whole, geography may be regarded as the accumulation of all local geographies of the world; for, however much the conditions of one locality may vary from those of another, similar conditions and influences may be found on some part of the earth's surface; and certainly the distant ones can be better appreciated if the local ones are understood. And, since actual experience is the true basis for all geographic study, local or home geography should therefore receive more attention; for, although no one district presents all the features needed, it offers great facilities for observation and experiment. The children should be led to observe, to discover, to work, to deduce principles from results and to verify them. We see examples of geographical facts and relationships on every hand. The soil, hills, valleys, industries, climate, government, etc., are part of every child's environment, and home experiences should be continually used—human relationships should be considered at every point. In the first stage a simple statement of observed facts suffices; but soon the nature of the facts will be better appreciated, if their fuller meaning, their physiographic life, is pointed out and made the basis of the sequence when following the effects of physical conditions upon life in its varied aspects, whether of plants or animals, including man.

Observational work should form a part of the school course; and this, I think, will be provided for when education authorities are convinced of the high educational value of this kind of work. As examples, I may mention a visit to a park, museum, market, works, cotton mill, station, docks, public buildings, art gallery, Kersal Moor, etc. Children should be led to see that rivers are fed by the direct or indirect rainfall, and that they carry the waste of the land to the sea. The soil in the valley and on the slopes is rock waste—the result of weathering—and not yet washed away. The long-continued action of the weathering agents has formed the present valleys and hills. This weathering is universal, and so the formation of soil is a general topic for conversation in park or field. The phenomena of weather serves well to develop the habit of observation, as rainfall, temperature, pressure, direction, and force of winds, etc. Records of the district

should be compared with others, and conclusions drawn and tested. Again, few districts can produce all the articles needed, and this leads to trading and the distribution of productions—food, or manufactured or raw materials—from station, dock, or market. The Ship Canal offers many opportunities for observational work of the first order, in its construction and use, its warehouses, grain elevators, traffic, ships, bridges, offices, etc. In our towns we have the streets paved, curbed, lighted, watered, drained; the houses are built close together, vary in size, construction, and use. Streams of people pass up and down; waggons and carts move masses of materials; trams carry passengers; at one time the streets are crowded, and at another they are empty. There are the shops, works, banks, offices; postal, telegraph, and telephone conveniences; baths, parks, museums, hospitals, public buildings, government, etc. All this illustrates how people live in towns, where for some reason thousands are gathered together. Why is this? Children should be led to understand that centres of population are not accidental distribution, but the result of some natural feature or group of features. Why do towns vary in size, in position, and occupation? Why is one industry carried on here and another there? Why are all the great centres of population found in valleys and situated on rivers or the coast? Why are some parts of the coast thickly populated and other parts practically deserted? Again, take a small village with its human conditions. Notice the closeness of the houses towards the centre, around the shops or works; how the roads converge towards it from the surrounding country. Consider the traffic on the roads inward and outward, etc. After the observation there should follow an explanation, and the children should be led to see the life history of the town or village in connection with the life history of rivers, valleys, and hills.

It is not sufficient for children to remember these facts after a discussion in the classroom; they want to consider the subjects on the spot, and under the guidance of the teacher. Children can always reproduce what they know at first hand better, and more faithfully, than what they have been told; and it is of the first importance that these observational lessons should be followed by written descriptions. It is then made to help all the school work, and we have a correlation of this observational work with language, history, geography, drawing, and even arithmetic.

While concrete illustrations and lessons must always be characteristic of observational work, it should not be carried on with the idea that the particular investigation undertaken with the children is an end in itself. This work, in common with every study of nature, or with the interaction of man and nature, has an inspiring culture value. The information the child obtains from the work is not the most important, although, I am afraid, we are too apt to consider knowledge the end of our work, instead of the means by which we intend to reach our goal. The discernment it gives the child in the relation of controlling influences is of far greater value.

Let us examine the system of teaching geography in the generality of our schools. There are many honourable exceptions, and, of course, such cases are excluded from our consideration. Teachers are generally slaves to text-books, and the text-books are the basis of the

lesson, if not the whole of it. There is a scarcity of good maps and globes, while atlases, pictures, diagrams, illustrations, sand-trays, lanterns, and relief maps are luxuries not often enjoyed. Long lists of names, boundaries, physical features, productions, trades, imports, exports, towns, etc., are committed to memory, and, if the lesson has been prepared at home, are repeated in class. The questions generally asked are invariably answered by a list of names. A few questions may be asked on the physical features, but even here little effort is made to correlate facts. In some cases a few items are dictated from the notebook, and when these have been copied the lesson ends. Few, if any, explanations are offered to make the subject attractive and intelligible. In such cases the teacher is simply a machine acting mechanically within the boundaries of the text-book, the one aim being to crowd the mind with a mass of indigestible and almost useless material.

In the American schools the subject receives more thoughtful consideration, and is more highly valued as a means of developing observational power and of increasing the intelligence. The schools are well equipped with all necessary apparatus, and in most the lantern, stereopticon, museum and library, and numbers of maps, pictures, sand-trays, relief maps, and globes are common. Detailed schemes are drawn up, and many of the lessons are arranged and boxes of specimens prepared by the superintendents. These illustrate land productions, their preparations and manufacture. They are obtained from various sources, packed in boxes, and circulated from school to school. Nothing from any source likely to stimulate the interest is overlooked. It is common to see each child in a class with a globe or a sand-tray, a relief map or atlas, a picture or specimen, tracing out or following the description of the teacher. In one class forty children, each with a globe, were tracing the zones, and a number of specimens and pictures represented the productions, scenery, and life in the different regions. In a lesson on silk there was a large number of bottles and cases, with samples of silk mounted on cardboard. Pictures representing the silk industry were all about the class and in the hands of the children, while among the specimens were eggs, a worm eating a leaf, one full grown, another ready to form a cocoon, and a set of illustrations of silk manufacture showing the cocoon from the first spidery floss on the tree to the final stage with the worm out of sight. Samples of silk in various stages were in a number of bottles, and the printed matter for the lesson—an article on silk, a list of references to the best books on the subject, several pamphlets, and a topical outline of the subject for use in class—were all carefully arranged for the use of the teacher. The same careful preparation and arrangement is adopted for a large number of the most important productions and manufactured articles. Lantern slides are prepared and lectures given. Sometimes these lectures are given in the evening and the parents of the children invited. The children in turn describe the pictures; the others correct any mistakes and supply omissions.

Visits are at times made to places and scenes of interest, including parks, works, and museums. A visit to the Smithsonian Institute and National Museum at Washington, the Commercial Museum and

the Museum of Science and Art at Philadelphia, or the Museum of Natural History at New York would be of more value than many lessons in the classroom, even if the teaching were of the highest order. The ethnology of life may be traced in customs, dress, occupations, and productions in the splendid arrangements of the exhibits by the most casual observer. Life-sized figures represent the dress, occupations, and worship of the various tribes and peoples. Productions from the various states and countries are so arranged that the processes of production or manufacture of most can be seen, while printed and illustrated descriptions are plentiful, and the services of experts are always at hand for those who need them. The development of art, music, religious ceremonies, commerce, etc., are treated in the same intelligent manner. It would be difficult to overestimate the importance, and the even great possibilities of such institutions in the spread of knowledge. These magnificent collections of specimens and exhibits, and the general arrangements made for the instruction of those who require it, are deserving of the highest praise, and show what the American people are prepared to do for the advancement of education, and in the great struggle for commercial prosperity.

Each State has its own course of study, but in all home geography figures largely. Excursions are advised, and the habit of investigating the home environment is fostered and made the basis for later work, while the correlation of this study with other subjects is insisted on from the first. Each State, too, has its own text-books, which are the same in all the schools, and in order to make the course more uniform a very detailed scheme of work is issued. This extends over many pages, and contains most valuable hints and suggestions on the subject matter and the method of instruction. With regard to lantern lectures, I gathered that in 1901-2 forty lectures were given to the pupils in the evenings in Boston. In 1902-3 two courses were given to the people. The first course consisted of 24 lectures, and was attended by 16,495 persons; the second consisted of 32 lectures, and was attended by 23,578. These lectures are common in all the States, and are invariably well attended.

I have said much in favour of the American system, not because I consider their system perfect, for they, as we, are trying to find an ideal course, but because they attach more importance to the subject and are continually trying to evolve a scheme that will be considered perfect.

The following is an outline scheme of geography for the State of Michigan, together with the English scheme:—

OUTLINE OF COURSE IN GEOGRAPHY FOR THE STATE OF MICHIGAN.

I. The aim in all geography teaching should be to elicit ideas, not to teach words; to secure the understanding of geographical facts and the building of mental images of distant places, peoples, and conditions, not to have statements about them memorised. The ideal in this teaching is to seek the facts of geography in the world out of doors when we can get at them there, in photographs and maps that symbolise this world, and in the text-books, which are perhaps the least vivid of these sources.

II. Class work in geography should appeal to both reason and memory; reason first and memory last. Children should be led to build images from out-of-doors observations, from the study of maps and photographs; from these to reason out and image distant geographical facts, and lastly to memorise them. When the stage of memorisation is reached there should be no half-hearted work; facts should be driven home to stay.

III. The Committee recommends a first study of the main physical features of each continent, with a brief treatment of prominent physical regions, closing perhaps with the middle of the fifth grade, and then a thorough intensive study of the few important countries of the world up to the end of the seventh grade. To supply a basis for comparison in the study of foreign countries, and in view of the fact that many children leave school early, it is recommended that the United States be studied twice—first at the end of the regional study, and again in more detail at the end of the course.

IV. The following is the order of study recommended:—

1. Home geography, below the fourth grade and preceding the use of any text-book.
2. The earth as a whole. Important material is the cheap globe—one to every few pupils.
3. Prominent physical features of each continent, with a brief study of regional geography.

NOTE.—So much (1, 2, and 3) may perhaps be accomplished by the middle of the fifth grade.

4. The few important countries studied intensively, a few others briefly, touched from the standpoint of their main interest for the rest of the world, which may well be at times the course of current events.

V. The thorough study of a country regarded as important should bring the children vivid ideas of what that country is and stands for in the world's progress, ethically, socially, industrially, and commercially; what are her landscapes, her people, her cities and villages: how she lives, what her institutions, and the influence they have had on the world's work, and especially their influence upon the relation to the progress of our own country. If the location of fewer cities, mountains, and rivers should be taught than has been usual, they should be taught thoroughly. A few countries, and these the countries of most importance—made real in landscapes and institutions—this is the Committee's ideal of geographic attainments in the grades.

The following schedule suggests how such a plan of study could be fitted into the allotted time. The Committee thinks of such time for such countries rather than just this time for just these countries.

Grade III. Observational or home geography, throughout the year.

Grade IV. The world as a whole, 6 weeks; regional study of North America, 10 weeks; regional study of Europe, 10 weeks; regional study of Asia, 6 weeks; regional study of South America, 4 weeks.

Grade V. Fuller study of United States and Michigan, 10 weeks; regional study of Africa, 4 weeks; regional study of Australia, 4 weeks; intensive study of Great Britain, 10 weeks; intensive study of Germany, 8 weeks.

Grade VI. Intensive study of France, 8 weeks; intensive study of Russia, 6 weeks; intensive study of India, 4 weeks; intensive study of Brazil, 3 weeks; intensive study of Chile, 3 weeks; additional, 2 weeks.

Grade VII. Intensive study of Argentine Republic, 3 weeks; intensive study of other countries, 15 weeks; intensive study of United States, 18 weeks.—*Normal College News*, November, 1904.

The following is the scheme of Geography for 1900 in the English schools, and is followed by the alterations made up to the present time:—

1900.

Standard I. A plan of the school and playground. The four cardinal points. The meaning and use of a map.

Standard II. The size and shape of the earth. Geographical terms simply explained, and illustrated by reference to a map of England. Physical geography of hills and rivers.

Standard III. Physical and political geography of England, with special knowledge of district in which the school is situated.

Standard IV. Physical and political geography of the British Isles, and British North America, or Australasia, with a knowledge of their productions.

Standard V. Geography of Europe, physical and political. Latitude and longitude. Day and night. The seasons.

Standard VI. The British Colonies and dependencies. Interchange of productions. Circumstances which determine climate.

Standard VII. The United States. Tides and chief ocean currents.

1901.

Standard I. Elementary notions "of geography."

Standard II. The county or district, with explanations of terms as they occur.

Standard III. England and Wales.

Standard IV. British Isles and Europe.

Standards V., VI., VII. One of the Continents, with special reference to British Possessions.

1903.

All the Classes. Lessons, including object lessons on geography, history, and common things.

1904.

All the Classes. Geography, advancing from first notions to an outline knowledge of the chief physical features of the earth, and especially of the British Isles and the British dominions beyond the seas.

NOTE.—The following is not under the heading "Geography," but undoubtedly has special reference to the subject: Knowledge of the common phenomena of the external world, with special reference to the formation of a habit of intelligent and accurate observation, and the application of that habit—in conjunction with simple forms of experiment—in the daily life and surroundings of the scholars.

1905.

All the Classes. Geography, based upon elementary notions acquired through observational lessons, nature study, and descriptive lessons, and leading to a general knowledge of the earth and its peoples, and a more detailed knowledge of the British Isles and the British dominions beyond the seas. Where possible the geography of the chief foreign countries should also be taught in some detail. The scholars should learn to use good maps, to make their own simple sketch maps, and in the higher classes to draw maps to scale.

Observational lessons and nature study, which should be taught with special reference to the surroundings of the scholars, and to the natural features, industries, and plant-life of the locality, with the view of forming the habit of intelligent and accurate observation. . . .

Curriculum.—The teaching should afford frequent opportunities for the practice of oral and written composition, and, so far as possible, all subjects should be taught in relation to each other, and with reference to the surroundings of the children. Those operations and things with which the people are concerned in their daily occupations should furnish some of the subjects of arithmetical problems, observational lessons, nature study, and drawing lessons.

From the above it will be seen that when geography is taken in conjunction with observational lessons, and the valuable suggestions offered in the preface and under the heading "Curriculum" in the English Code for 1905, it is of a highly-educational character; but it is not what is required. Theoretically, it is a very good scheme, and follows closely the American course in geography. Practically, it is indefinite in its requirements and wanting in detail. In my opinion there should be a definite object—reached in stages—with a detailed scheme, containing any necessary suggestions. If this is not supplied it will be a long time before the old system of learning names is obsolete.

If home geography, with observation and reason, is to form the basis of geographic teaching, the first courses should offer no great difficulty. Children should know and intelligently understand, in addition to what has been suggested, the physiography, natural productions, industries, and life conditions of their own district, and the relations between them; where local manufacturers obtain the raw material, how it comes, where the goods are sold; why the materials were bought, made, and sold; why there is an interchange of productions between town and country; what the district contributes to other parts of the world, and what it receives in return, and why; why do rocks decay; how soil is made, and its uses, etc.

In conclusion, I would point out that geographical societies and experts are numerous. They have a high estimate of the value of geography, and they should make a great effort to devise a course of study in the subject that will make it a living force in the development of observational power and intelligent reasoning, and give pupils a right understanding of the close relationship between life and the earth.

WEATHER FORECASTING.

By WILLIAM MARRIOTT, F.R.Met.Soc.

[Abstract of a Lecture given to the Manchester Geographical Society, on November 21st, 1905.]

EVERYONE is interested in the weather, for it forms almost the first topic of conversation. People from the very earliest times have also been interested in it, and there is no doubt that we can even go back to Adam, for he was a farmer, and consequently he would be interested in the weather.

The earliest known observatory was the Tower of the Winds at Athens, built more than 100 years before Christ.

Illustrations were shown of the instruments now used by meteorologists in making observations of the weather. These include barometer, dry bulb, wet bulb, maximum and minimum thermometers, rain gauge, sunshine recorder, anemometer, etc. The thermometers are placed in a Stevenson screen, which is a louver-boarded box, and are mounted 4 feet above the ground, so as to be at the ordinary breathing level. In order to make the readings of the barometer comparable with those at other places it is necessary to reduce the readings to 32 deg. Fah. and also to sea level.

If the temperatures at a number of places over a large area are plotted on a map, and lines drawn through those of the same value, we can readily make what is termed an isothermal map. The lines are called "isothermals"—that is, lines of equal temperature. It can readily be seen from such a map where the cold and warm areas are located, and whether there is much difference between the temperatures in different parts of the country.

If a similar method be employed with regard to the barometer readings, isobaric charts can be formed, and the lines on them are called "isobars," or lines of equal barometric pressure. If on the isobaric map arrows also be placed indicating the direction of the wind, it will be seen that there is a relation between them and the isobaric lines, as they run very nearly parallel one with the other. The arrows show, however, that the wind blows round the areas of high pressure in the same way as the hands of a watch, while round the areas of low pressure they show that the wind blows in the opposite direction to the hands of a watch. [This circulation applies to the Northern hemisphere; in the Southern hemisphere the directions are the reverse.]

Illustrations were given showing the distribution of temperature and of atmospheric pressure over the British Isles, and also over the globe, for the months of January and July; and the prominent features contained in them were pointed out.

The direction and the force of the wind are recorded by anemometers, but at stations where the observer is unable to provide such instruments the force of the wind is estimated by the Beaufort scale.

The prevailing winds of the British Isles are mostly from the south-west. The average number of days in the year on which the wind blows from the different points of the compass at the Royal Observatory, Greenwich, are—

North	40	South-West.....	106
North-East.....	45	West.....	46
East.....	27	North-West.....	22
South-East.....	22	Calm.....	22
South.....	35		

For ascertaining the conditions and motion of the upper air observations are made on the form and the direction of the movement of the clouds. Luke Howard, a Quaker gentleman, in 1803 devised a nomenclature for the various forms of clouds. This was, however, revised a few years ago by a number of foreign meteorologists, who adopted the following nomenclature (the approximate heights at which these clouds float are given in brackets): Cirrus [27,000 to 50,000 feet], Cirro-Stratus [29,500 feet], Cirro-Cumulus [10,000 to 23,000 feet], Alto-Cumulus [10,000 to 23,000 feet], Alto-Stratus [10,000 to 23,000 feet], Strato-Cumulus [6,500 feet], Cumulus [4,500 to 6,000 feet], Cumulo-Nimbus [4,500 to 24,000 feet], Nimbus [3,000 to 6,400 feet], and Stratus [0 to 3,500 feet].

The best instrument for measuring the rainfall is the 5-inch Snowden pattern rain gauge. The average monthly rainfall at Fairfield, Manchester, 312 feet above sea level, is as follows:—

	In.		In.
January.....	3'22	July.....	3'79
February.....	2'29	August.....	3'52
March.....	2'48	September.....	3'82
April.....	1'98	October.....	3'99
May.....	2'34	November.....	3'47
June.....	3'05	December.....	3'47

Year, 37'42 inches.

The rainfall map of the British Isles shows that the heaviest rainfall occurs in the hilly districts in the western parts of the country. and that the eastern districts are the driest. Styne Head, at the end of Borrowdale, in Cumberland, has the heaviest rainfall, the average annual amount being about 170 inches.

When the temperature is low the precipitation takes the form of snow, which is a six-pointed crystal of a very beautiful design and of endless variety.

The amount of bright sunshine is obtained from the Campbell-Stokes sunshine recorder, in which a glass ball acts as a burning-glass and chars a card placed in its focus. The greatest amount of sunshine is recorded along the South Coast, and the least in the neighbourhood of large towns and manufacturing districts, where the volumes of smoke which are belched forth into the air obstruct the sun's rays.

Reference was made to the attempts which have been made for ascertaining the meteorological conditions prevailing in the upper regions of the atmosphere—first, by means of balloons in 1862-1867, by Mr. Glaisher, on behalf of the British Association; secondly, by the establishment of mountain observatories; and, lastly, by means of kites carrying a meteorograph for recording the pressure, temperature, humidity of the air, etc., at considerable altitudes above the earth.

The proprietors of the *Daily News* were the first to publish a table of synchronous meteorological observations, and this appeared on August 31st, 1848; and on June 14th, 1849, they published the first telegraphic daily weather report. The first printed daily weather map was issued at the Great Exhibition, in Hyde Park, on August 8th, 1851.

Weather charts are now prepared and published by the meteorological organisations of most countries. A number of weather charts for the British Isles were exhibited, illustrating various types of weather, and the lecturer explained how that the weather is dependent on the distribution of atmospheric pressure. The areas of low pressure are called "cyclones," and in these the wind blows round them in the direction opposite to the hands of a watch, and also with a tendency to blow slightly inwards. The isobaric lines are often close together, and this indicates a considerable barometric gradient, and consequently a strong wind. The areas of high pressure are called "anti-cyclones," and the wind blows round them in the same direction as the hands of a watch, but with a slight tendency to blow outwards. The isobaric lines are usually wide apart, which indicates light winds. "Bad weather" is generally associated with cyclones, and "good weather" with anti-cyclones. The weather conditions in these two systems are almost opposite to each other.

The following law was propounded some years ago by Professor Buys Ballot, a Dutch meteorologist, viz.: "Stand with your back to the wind and the barometer will be lower on your left hand than on your right."

It was shown by a number of lantern slides that the cyclonic systems generally travel in a north-easterly direction across the British Isles, and that the weather at any particular place is dependent on its relation to the centre of the low or the high pressure.

Storm warnings were first issued by Admiral Fitz-Roy in 1861 to the seaports to warn fishermen, etc., of the probability of coming gales. Later on, the Meteorological Office prepared and issued forecasts of the weather for the various districts of the British Isles. These are now regularly published in the daily newspapers. The average percentage of success of these forecasts for the ten years 1894-1903 was: Complete successes 55·4, partial successes 27·8; total successes 83·2; failures 16·8.

Many of the newspapers give, in addition to the actual forecasts, pictures illustrating the probable weather in a popular form.

EAST ANGLIA—CROMER, THE NORFOLK BROADS,
NORWICH, AND ELY.*

By J. J. GLEAVE.

[Addressed to the Society in the Geographical Hall, on Tuesday,
December 12th, 1905.]

AT the outset I must explain that it is only a portion of East Anglia that I shall conduct you in imagination through to-night. It is, however, famous in historical and literary sense no less than scenic. You will possibly and perhaps reasonably ask, What attractions can such a flat land have to us, who in less than three hours can reach the surpassingly-beautiful Lake District? My reply shall be one made by a great traveller, mostly on foot, through the whole of England and a great portion of the Continent of Europe. I refer to the late Walter White, who has written, in charming, easy style, the results of his observations and impressions in many books. When Mr. White mentioned to an inquirer his next tramp, viz., "East Anglia," his friend replied, "Why, my dear fellow, 'tis actually wasting a holiday to spend it in those dull, flat counties," in refutation of which Mr. White produced one of his characteristic and pleasing volumes in 1865.

CROMER.

This recently popular seaside resort is situated on the northern shore of Norfolk, eastward of the Wash, which separates it from Lincolnshire. Its peculiar situation enables it to have a sea breeze from three points of the compass, viz.: North, East, and West, and both sunrise and sunset are seen from its pier. The journey from Manchester by express—through carriages—is a few minutes short of six hours by Lancashire and Yorkshire Railway, through Wakefield and Doncaster, thence by Great Northern through Retford in Nottinghamshire; then due east along the shores of the Wash, past King's Lynn and Sandringham to Cromer. The King's Norfolk home, with its noble gateway, is well seen from the railway, the mansion itself, visible in the distance, rising amongst encircling woods. Soon after leaving Sandringham, the line approaches the shore, and an almost uninterrupted view of the North Sea greets the inland visitor.

In our journey across England we have traversed the busiest parts of industrial Lancashire and Yorkshire, the agricultural and corn-lands of Nottinghamshire and Norfolk, now (middle of July) turning yellow, crossed the stately Trent, passed many picturesque cottages whose tiny gardens are ablaze with lovely lilies, skirted reed-margined water-courses, and innumerable windmills, both for raising water and

* The illustrations are from blocks kindly lent by the Great Eastern Railway Company.



STREET IN OLD CROMER.



grinding corn; all these under, if not a cloudless, yet a sunny sky, truly a memorable ride of nearly two hundred and fifty miles.

Cromer proper is an old town, with narrow streets, built on the edge of the cliff, with noble church standing in the main street. This fine structure is a landmark for miles around, and is of Tudor architecture. Its interior is capacious and noble in appearance, and in the season it is well filled. Its rector (Rev. Mr. Sheldon) is a popular preacher and a very active worker, and draws around him a large and select congregation. Select or eclectic is the keynote of Cromer in everything. The town regulations, as indicated upon the sea-front, are puritanic, and read like a modern decalogue—

Thou shalt not do this or that,

under penalty, are amusing.

Another feature which strikes a visitor from the north-west is the gentility, and in many instances the nobility of the numerous mansions behind the old town. Some of these are the residences of well-known London bankers.

Diversity and elegance of architecture, enriched with delightful grounds, gay with choicest flowers, characterise these houses.

Cromer is governed by two authorities, viz.: The Urban District Council and the Protection Board; the latter has charge of the pier, promenade, and the near cliffs, which indeed require constant attention by reason of the inroads of the sea. Electric lights, both arc lamps and the incandescent Edison type, illuminate this picturesque town, which is spotlessly clean. The form of the street lamps is both artistic and scientific, viz.: the glass which fills the four sides is curved (not globular), thus magnifying the light. Fruit in summer time is most abundant, and is mostly hawked about the street in hucksters' barrows, but no vulgar bawlings annoy would-be purchasers by their importunities. One doesn't require to be long in Cromer or upon its lively beach to be aware that here is no west coast resort, thronged by the brusque, vulgar, yet honest-hearted working-class element from the busy hives of Lancashire and Yorkshire. The *habitués* of this Norfolk coast town are mostly from London, south country, and the Midlands. Cromer is only just becoming known to Manchester folk, and is likely in the near future to be popular, for it is a land of glorious sunshine, fine seas, and is a happy hunting-ground for botanist and geologist. For is it not close to Cromer where lie buried submerged forest beds, with their strange fossil bones of extinct animals? (See Norwich Museum.)

We have spoken of Cromer as possessing some old houses and narrow streets, but the town of antiquity lies buried beneath the waves, and to this day may be seen in a submerged rock called Church Rock, upon which stood the parish church of early times. The great attraction of Cromer is its cliffs, especially its eastern one, where are the lighthouse and magnificent undulating grassy golf links.

The country immediately behind the town is well wooded and richly cultivated with corn. Many historic mansions abound in the neighbourhood, notably the home of Sir Fowell Buxton, of slave emancipation fame, Northrepps Hall, about two miles from the town. Between this mansion and the coast is a delightful winding stretch of

deeply-wooded road, with magnificent pine trees. Within the ruined Overstrand Church lie the mortal remains of the distinguished Quaker and his kindred.

There are pretty seaside villages within a few miles of Cromer, both on the east and west cliffs, as Mundesley, Sherringham, and the Runtons.

This Norfolk outing will be long cherished as a first introduction to an unknown part of England, and its memories of sunshine, poppies, golden corn, and emerald tides will be a pleasant sensation for years to come. Of its inhabitants, we can testify to their courtesy and manliness—their peculiar intonation (a slight drawl on some words) not at all unpleasing. This we particularly notice about the old salts, who, with nut-brown faces, loiter about the boats and lifeboat house, with whom and the coastguardsmen we had many pleasant chats.



Photo by]

[Payne Jennings.

ENTRANCE FROM THE RIVER BURE INTO WROXHAM BROAD.

WROXHAM AND THE BROADS.

The visitor will be interested to know that most parts of these marshlands came into existence as late as the Roman occupancy of Britain. It was then a great estuary, three miles wide at its mouth, extending from the high ground at Gorleston, south of Yarmouth (mouth of river Yare), to that of Caistor, north of that town. Yarmouth, if it existed at all, was nothing more than a sandbank or islet, probably submerged at every flood tide. Inland, it must have extended at one time as far as Norwich, north-westward as far as Aylsham, southward over what are now the marshlands around Oulton Broad in Suffolk, and south-westward as far as Bungay in Suffolk;



THE SANDS, CROMER.



CROMER FISHERMEN.



whilst over the marshlands to the north of Yarmouth extended large arms or bays of the sea, into which flowed what is now known as Thurne or the Hundred River. The blocking up of the mouth of this great estuary—caused by an accumulation of sand from the north, where the coast had for many centuries of constant erosion been wasted by sea encroachment—resulted in the bed of the estuary gradually becoming a vast swamp, and this swamp, partly by natural and partly by artificial drainage, was slowly transformed into lush-grassed marshlands. At the present time the only remaining portion of the estuary is Breydon, which receives the waters of the rivers Yare, Bure, and Waveney, and their tributaries. The channels of these rivers form connection of numerous meres and lakelets, like pearls in a twisted necklace. These are the Broadlands of to-day.

It was a brilliantly sunny morning when we left Cromer to visit Norfolk Broadland. A gentle, crisp breeze tempered the July heat, intensifying the pleasure of this delightful trip. Wroxham is about eighteen miles from Cromer. On the route lies the village of North Walsham, where Nelson's early school-days were passed. Immediately on arrival at Wroxham we embark upon a neat steam screw launch, and deftly clear the numerous craft of rowing boats and wherries which crowd about this favourite spot. We steam silently and smoothly up the sinuous river Bure, which quickly flows amongst fields rich in meadow-sweet, whose fragrance fills the air. Tall, purple-flowered grasses and bulrushes line the banks, which in places are enriched by water-lilies now in bloom. These alternate with gardens, stretching to the river's brink, from dainty residences embowered in trees. Innumerable sailing boats and wherries pass and repass, the huge white sails of the latter fully spread and skilfully manipulated tack about in marvellously small space. It is amusing to see these drip-white sails winding amongst the trees. In the summer season a steam wherry plies to and from Yarmouth, about 30 to 35 miles distant from Wroxham. The first picturesque village we pass is Belaugh, whose square-towered church we had noted soon after starting. It took five miles of sailing along this winding river to reach it, though but a mile away when first seen. Our destination in this our first trip is Cottishall, a very *beau-ideal* for the artist and angler. The reed-thatched and red-tiled roofs of the scattered cottages naturally compose themselves into fine groups for the painter's brush. Here we disembark awhile and stroll about. Cottishall is acknowledged to be the most picturesque waterside village in the district. Its church, quaint old inns, and malt-houses, houses with Dutch gables, wherry builders' yards, and charming gardens, sloping down to the river banks, make a series of delightful pictures.

Returning to Wroxham to lunch at the "Three Horse Shoes," we enjoy the cold collation, neatly served, and heightened by the keen enjoyment of the first part of our water programme. In due time we are again aboard our comfortable launch, and proceed down stream, this time visiting several of the "broadlands" we had come to see. These are sheets of still water of varying areas, as Hoveton Broad, Salhouse Broad, and Wroxham Broad. The last is by far the largest mere or lake, being nearly a mile long and a little short of one hundred acres in extent. It is here that we see numerous water-fowl, grebes, wild

ducks, and that amusing acrobat, the coot or water-hen. This dapper, little dark creature will emerge from the sedges, utter a peculiar metallic shriek, suddenly disappear by diving, swim a considerable distance, and re-appear across the broad, and quickly disappear amongst the reeds. Sailing round this spacious sheet of water was much enjoyed. Much as these broads have in common, there is always some special characteristic about each. One is charmingly surrounded by trees, with dainty boathouse, or rude, tumble-down eel-catcher's hut, with strange-looking wicker-work traps alongside. Such is the small but *dainty* Salhouse Broad, with its many sketchable objects.

We get a good example of the broad Norfolk speech from these eel-catchers: "When you feel a little pull at th' line, jist hyst it up carefully, an' drop th' worams inter th' keeler (tub); ony you mustn't be tew hasty about it, or you may shake him orf and luse him."



EEL CATCHERS' HUTS ON THE BROADS.

Wroxham Broad is chiefly noted for its greater extent and its breadth of fringing reeds and bulrushes with patches of lilies lying upon the placid waters. Steaming out of this broad we are in the river Bure, which we descend, and soon reach Horning, a most picturesque village upon the banks of the river. There is a very imposing new hotel and some good houses, which, with the quaint reed-thatched cottages, often tempt the artist's pencil and the tourist's kodak. On a second visit we made Horning our quarters for lunch and tea, which we think an improvement upon Wroxham. Another noteworthy feature of Horning is its ferry, whereby loaded merchandise is carried over the Bure. We are often reminded of William Hunt's portraits of village characters. Here, near Horning Ferry, sitting comfortably upon a chair is a typical Norfolk man, a fat and brown old man, with his white apron across his knees. The old boy (pronounced "oold booy") is fishing. A broad felt hat shields his tanned features from

the hot July sun, and, we suppose, whether rightly or wrongly, that here is a village tradesman improving the shining hour betwixt customer and hooking the finny race.

On our second cruise upon these waters there was an angling competition proceeding. Many fishing clubs were represented. Each competitor had a punt to himself, moored at equal distances apart on the margin of the river Bure. Occasionally we saw the glistening fins of a flashing bream as it was drawn out. We also noted with pain a wriggling eel which had taken the hook. Poor creature, we could see its contortions for some time.

The last broad entered was that of Ranworth, entered by a dyke from the river. In our sailing, we had seen and enjoyed so many lovely and quaint bits of scenery that it would be invidious to name any as having pre-eminence, but the rude yet intensely picturesque landing stage at the head of Ranworth Broad shines out most vividly in our memories an old half-timbered Norfolk farm-steading, where, in the culvert of the corn-mill, a callow brood of ducklings were disporting themselves. An old-world hostelry and a shady lane close by make up a memorable picture. This sylvan lane leads to the quaint church, about a bow-shot distant. Within this fine old church (by-the-by, how rich is Norfolk in churches of the Tudor period) is enshrined a fine old carved rood, which is painted and also gilded. It is pre-Reformation in date. The open Gothic work is chaste in design and of good workmanship. The panels below are said by experts to have great merit, the colouring and gilding are mellowed by age. The subjects represented are Saints and Apostles. The bench ends have been beautiful in their time, but the incessant scrubblings have destroyed the fine carving. It has been well said of this rood-screen, "The beautiful diapers on the robes painted on the panels, and the elaborate flower-work which adds to and heightens the effect of the architectural features, make the whole composition suggestive of a great initial page of some splendidly illuminated manuscript."

We mustn't omit to mention the courtesy and kindness of the vicar in showing us round this interesting old church, which is reed thatched, but so neatly as not to look remarkable.

Regretfully we leave Ranworth, so full of happy memories, noting the watery outlets from the vicarage grounds into the broad, so that its worthy occupant can steal silently out in his skiff with his rod or his book. What an ideal spot for study! Is it much wonder that many of our most gifted naturalists have been country pastors—Kingsley, Gilbert White, Wood, and Morris (ornithologist), were all Anglican clergymen. Ranworth Broad is the resort in autumn of enormous flocks of water-fowl, and great numbers are caught in decoys on its shores. Here are often to be seen herons feeding, for this broad abounds in fish, also in otters. In old days many rare birds, as the bustard and the "booming" bittern, were found here. Modern draining has driven away this last bird, for its privacy is gone.

The broads described, though the most beautiful, are not the largest, the largest being Hickling Broad, 400 acres. There are 200 miles of navigable rivers in Broadland.

NORWICH AND ELY.

In the glorious summer weather of July, 1904, when day succeeded day of cloudless sunshine, which we were enjoying at Cromer, that marine gem of Norfolk, we decided to visit Ely, calling *en route* at Norwich. It is a pleasant run of 22 miles by rail to the capital of Norfolk. Before entering this fine old city we pass close to its delightful suburb, Thorpe. Thorpe is said (and we can well believe it) to be the prettiest village in the county, and the Richmond of Norfolk. Its flower-sprinkled gardens and sloping lawns stretch to the banks of the river Wensum. Arrived in Norwich, our first duty is, of course, to visit the Cathedral, a fine Gothic structure in excellent preservation, the square tower of which springs from the intersection of the transept and terminates in a graceful crocketed spire 315 feet from the floor of the nave. The interior is a vision of beauty and grandeur, of whitish stone, carefully cleaned a few years ago. Its position is very delightful, studded with fine trees, and girdled around with stately buildings and gardens. There are remnants, too, of mediæval times in a fine old abbey gateway. The Bishop of Norwich is also, by inheritance, the nominal Abbot of St. Benet, a ruined abbey on the Bure. We also visited the Castle, whose sole remain is the noble keep of Norman times; the moat is now dry, and converted into a public garden. Within the Castle is a very fine museum and art gallery. It contains the Gurney collection of birds, said to be the finest in England. The collection of fossils from the forest beds of the Norfolk crag series of rock is remarkable. These are the remains of prehistoric animals, immense tusks and bones of the woolly mammoth, rhinoceros, hippopotamus, and other tropical creatures found under the waves near Cromer. The Stranger's Hall, an ancient mansion of a Norwich merchant of the fourteenth century, was also visited. It is most picturesque. From the very brief glimpse which our time allowed we realised that Norwich is a pleasant city, with plenty of activity in its well and stately built streets, worthy of its renowned and industrial ancestry, for this eastern city was centuries ahead of Lancashire and the West Riding of Yorkshire in woollen and other trades. It still boasts of many industries, and is a busy city of some 90,000 inhabitants.

I find in "Evelyn's Diary" the following entry respecting Norwich:—

"Next morning I went to see Sir Thomas Browne (the noted Physitian), with whom I had some time corresponded by letter, tho' I had never seen him before. His whole house and garden being a Paradise and Cabinet of rareties and that of the best collection, especially medals, books, plants, and natural things. Among other curiosities Sir Thomas had a collection of the eggs of all the foule and birds he could procure, that country (especially the promontory of Norfolk) being frequented, he said, by small birds; which seldom or never go farther into the land, as cranes, storks, eagles, and variety of water-foule. He led me to see all the remarkable places of this ancient city, being one of the largest and certainly after London, one of the noblest of England, for its venerable cathedral, number of stately churches, cleanness of the streets, and buildings of flints so exquisitely headed and squared as I was much astonished at; but he told me they had lost the art of squaring the flints, in which they once so much

excelled, and of which the churches, best houses, and walls are built. The Castle is antique, greate extent of ground, which they call Mar's field, and would have been a fitting area to have placed the Ducal Palace in. The suburbs are large, the prospects sweete with other attractions, not omitting the flower gardens, in which all the inhabitants excel. The fabric of Stuffs brings a vast trade to this populous toune."

*Photo by]**[Payne Jennings.***NORWICH CATHEDRAL: ERPINGHAM GATEWAY.**

This most graphic account is correct to-day, and the beautiful appearance of the buildings, faced with glistening, many-tinted flints nicely split, is very noticeable to one from a district where common bricks and mortar and ordinary sandstone abound.

In the afternoon we leave for Ely, some fifty miles away, in Cambridgeshire. The country is flat; near Norwich fertile, waving with corn and dotted with clumps of woodland. As we proceed we

find the land less productive, with many indications of marsh and fen, when we realise we are nearing the Isle of Ely and are minded of the stirring historic past, when our Saxon ancestors under that redoubtable chieftain Hereward the Wake, or the Saxon, held the proud Norman at bay—so graphically told in Kingsley's "*Hereward the Wake*."

More than a thousand years of draining these eastern marsh and fen-lands have added untold wealth to our fair island home, and increased to a still greater extent the health of modern times. Ague and the palsy have vanished with the bittern and the polecat; golden corn-lands have taken their place.

We have now reached Ely, and as we emerge from the railway station we notice it is of classical Grecian design, in course of repair.

Ely is built upon gradually-rising ground, and is a small, clean, quaint town of about 7,000 inhabitants. It has the usual characteristics of these stranded towns—mixed architecture, thatched houses with overhanging windows cheek by jowl with modern up-to-date plate-glass, narrow passages opening out into lovely orchards, open squares, with stupid-looking blocks of shops stemming the tide of business (!) if there is any. The bizarre effect of colour and sky-line, however, leave pleasant memories behind.

Our brief quarters we found very comfortable in the homely "*Bell*," in the High Street. It is one of those old inns of the type Dickens loved and described so well. The Cathedral precincts abut upon the other side of the street, being the rear of picturesque buildings whose fronts face the Minster. These are various clerical residences, Grammar School, and a few private dwellings. From the street a fine groined Gothic gateway, telling of monkish times, gives access to this close. The line of these buildings marks the high wall which always surrounds such structures.

In the "evening's first bright yellow" we strolled through the ancient archway into the Cathedral precincts, and pass beyond into a park of noble trees.

Leisurely we strolled round the noble pile we had come a hundred and fifty miles (in and out) to see, admiring its beauty, its grandeur, and general picturesqueness. The most conspicuous portions are, of course, its great tower and the lantern tower. The corner turrets of these are particularly graceful and somewhat unique, rising at each angle above the central mass, which is octagonal in plan.

In the fading light we rest beneath the trees, and under the soothing influence of an easy-drawing briar, reflect upon the past traditions of this historic district. Our thoughts travel down the stream of time nearly a thousand years—the middle of the eleventh century—when the last of our conquerors, William, Duke of Normandy, at the Battle of Senlac, defeated the last of our Saxon kings. It was some dozen years or more before he fairly subdued the East Anglian fen-dwellers, who, under the dauntless Hereward, a true leader of men, though but a stripling, proved a formidable foe by his fearless actions and rapid movements, and, above all, by his intimate knowledge of this treacherously marshy land which surrounded the Isle of Ely. He was, in brief, a Saxon *De Wet*. The Saxons had built and endowed a noble abbey here and also at Croyland, with a smaller religious house at Spalding. These were inducements enough to tempt the Norman

cupidity, and right bravely did our hero and his equally brave fen-men defend these holy shrines and the costly treasures which glorified the tomb of its foundress, St. Ethelfreda (A.D. 673), in Ely Abbey, the predecessor of the noble structure we see to-day. As the twilight but increases the solemnity and beauty of these old towers and woods, our thoughts naturally wander into the dawn of our national life, and there comes up the life of the young warrior-noble Guthlac, whose biography was written in the eighth century. Kingsley tells us how he was wandering in the fens, was taken in a canoe to a spot so lonely as to be almost unknown, buried in reeds and alders, and among the trees a mound which men of old had broken into for treasure, and a little pond; how he built himself a hermit's cell thereon, saw visions, and wrought miracles; how men came to him from afar as to a fakir of the East. Then there follow in naïve fashion most strange things, which certainly bespeak very primitive and half-savage times.*

To prosaic matter-of-fact minds many of the legends of saint and martyr are ridiculously silly; but not so to the sympathetic, penetrative student of human nature. He, with true Christian charity and insight, can read between the lines in these monkish chronicles and discover traits of great beauty and tender love in those far-off Saxon days.

The next morning of perfect weather saw us, after an early breakfast, bending our footsteps to the Cathedral. The writer was apparently the first visitor. Passing out of the intense light, it is a comfort to enter this spacious interior, into which the flood of sunshine is tempered by the vast masonry of pier, arch, and wall. An old verger of some four-score summers with bowed head was moving about, as were some young bats. These, the old man said, had been driven from the family nest. Before and during a short service, which from our point was difficult to hear, though the organ and singing were enjoyed, we sat quietly and let the scene sink gradually into our souls. This quiet contemplation and the trend of thought was worship.

As we entered by the Galilee door, passing under the west tower, we get a fine view of the whole unobstructed length of this glorious pile, stretching from west to east over 500 feet (537 feet exterior), whose great cross or transept is N. x S. 190 feet outside. We are moved by this magnificent vista, bounded by a forest of noble pillars, and illuminated by four tiers of windows, inclusive of clerestory. This vast stonework is of a mellowed chalk rock, of a rich cream colour. Well might Milton sing, in his "Il Penseroso"—

"May my due feet never fail
To tread the sacred cloisters pale,
Beneath the high embowed roof,
With antique pillars, massy proof,
And storied windows richly dight,
Casting a dim religious light."

When the verger is ready to take visitors round, we gather round him, pay 6d. each person, and receive an excellent plan and epitome of the building, and, after signing our names in the visitor's book,

* See Kingsley's "Prose Idylls" (The Fens), also "Camp of Refuge," published in 1844, by Charles Knight.

are conducted round. He is a pleasant, middle-sized man of about 50, a roundish face with a reliable expression. I am not going to weary with too many details. The ceiling-painting of the roof and lantern tower, finished in 1861, soon arrests our attention, but its altitude and position prevented any kind of examination. We believe there used to be a device whereby these frescoes could be well seen in reflecting mirrors placed at certain angles on a travelling frame—this we learnt afterwards. We also learn that the painter, on the completion of his work, when stepping back to look at it, missed his footing on the scaffolding, fell off, and was killed. We are pointed to the different styles of architecture which Ely presents—Norman, Early English, Perpendicular, and the highly decorative. The latter style is



Photo by]

INTERIOR OF ELY CATHEDRAL.

[Payne Jennings.

particularly rich in this Minster. We had a somewhat prolonged examination of the lovely Lady Chapel, for into here we strayed ere we began our formal round with the verger. It is in very deed a vision of such white loveliness as will linger in and delight the memory in coming days. We find on the printed circular given us that the Lady Chapel, now Trinity Church, is 100 feet long, nearly 50 feet broad, and 60 feet to its vaulted roof. A flood of glorious light came in through those tall, graceful Gothic windows of clear glass. The carving, save where the iconoclastic Roundhead has smashed it, and this is no little, is exquisitely sharp and well preserved. The white chalky stone when protected from weather is very durable. Another gem of most delicate carving, splendidly preserved, is the small Chapel of Bishop Alcock. This is the north-east extremity of the building

behind the altar, evidently late work (1486-1501). The play of fancy and clever craftsmanship of the sculptors is very manifest here, so clean and white. This John Alcock, who was Bishop of Rochester, built Ely Palace. In wandering through the fine church we discover it is a very Campo Santo of Bishops. Here is one William, Bishop of Kilkenny, whose heart is buried at Ely, whilst his body rests in Spain (1257). Amongst our party were two or three American ladies, who were very appreciative and intelligent listeners to our guide's description. This we have often found, that the cultured American is as proud (and very frequently better informed) of our shrines of Faith and Literature as we English.

How can I conclude better than quoting the beautiful and true words of R. L. Stevenson in one of his essays?—

"Some exquisite refinement on the Architecture of the brain which is indeed to the sense of the beautiful as the eye or ear to the sense of hearing or sight. We admire splendid views, great pictures (noble architecture), and yet what is truly admirable is rather the mind within us, that gathers together these scattered details for its delight, and makes out of certain colours, certain distributions of graduated light and darkness, that intelligible whole which alone we call a picture or a view."

NOTE.—On the screen were shown the portraits of three celebrated East Anglians—Lord Nelson, Sir Thomas Browne, author of "*Religio Medici*," and George Borrow, author of "*Lavengro*," "*Romany Rye*," etc.

The Cromer views have been kindly lent by the Cromer Urban District Council.

MARVELS OF THE SUBTERRANEAN WORLD
(THE JENOLAN CAVES, N.S.W.).

By FREDERICK LAMBERT, F.R.G.S.

[Addressed to the Society in the Geographical Hall, on Tuesday, December 19th, 1906, at 7-30 p.m.]

"So wondrous wild, the whole might seem,
The scenery of a fairy dream."

THE subject which is to claim our attention to-night will be divided into two parts. The first will deal with a journey from Sydney to the Jenolan Caves, situated in the heart of the Blue Mountains of New South Wales, and the second will deal with the caves themselves. The journey, which was undertaken by two friends and myself, covers a distance of 66 miles due west by rail, from Sydney to Katoomba, by way of Paramatta and Penrith, and then 31 miles by a track through dense bush, *viâ* Megalong.

PART I.—THE JOURNEY.

As Sydney is our starting point, we cannot do better than show on the screen a view of Port Jackson—its noble harbour. This harbour, which is acknowledged to be the finest and most beautifully picturesque in the world, has a magnificent, lake-like expanse of water, stretching inland for some eight or nine miles. Its shores are indented with a great number of pretty bays, and, as the eye wanders along in the distance, a succession of charming landscapes comes into view. The irregularity of the coastline, the verdure which clothes the hills, the villa residences, nestling cosily on the slopes, surrounded by gardens filled with plants and fruit from almost every clime, make up a picture of remarkable beauty.

The Great Western or Mountain line, upon which we travelled, runs through some interesting country. Leaving behind the suburbs of Sydney, with their elegant villas and stately mansions, and the town of Paramatta, with its quaint old church, and finely timbered park of sturdy English oaks, we pass through country enriched with dark-leaved orange groves, with their sweet-scented and golden fruit, townships, villages, and homesteads, with flourishing orchards, and richly cultivated fields.

After a run of 34 miles, we arrived at Penrith, and from here we obtain our first glimpse of the Blue Mountains, stupendous and grand, rising like a vast wall, crowned with verdure, and stretching away North and South, as far as the eye can reach. The Blue Mountains are so called on account of the lovely blue haze which covers them, as with a celestial bridal veil, and this blue haze is to the mountains, what the bloom is to the peach or the grape. They rise to an altitude of 4,000 feet, and form one of the most majestic stretches of mountain scenery in Australia. The panorama which opens to the view as the

railway ascent is made, is truly superb. Below, lie rich and extensive alluvial valleys; the River Nepean, the scene of many a sculling contest, may be seen like a silver thread, and an uninterrupted view is presented of the whole country between the mountain range and the coast.

Ascending still higher, the air became crisp and bracing, and we glided past sparkling waterfalls, rocky glens, bold bluffs, fairy dells, vernal valleys, leafy gullies, and impassable ravines; and, by the time Katoomba was reached, we had crept up the Blue Mountains, 3,349 feet.

Katoomba almost embarrasses the eye with a choice of picturesque views. In the immediate neighbourhood, the Katoomba Waterfalls are the principal attraction. Here, a deep semi-circular indentation cleaves an enormous mass of rocks, the cliffs on both sides rising to a height of 1,000 feet, impressing one more by their greatness than by their beauty. The water first gathers from various sources above the rock, and, merging into a stream, bubbles onward over many cascades, until it reaches the edge of the cliffs, and then, plunging over the rocky summit, with a sheer drop of 200 feet, falls on to the rocks below, where it is known as the Lower Falls, descending by several smaller leaps into an immense valley, 1,300 feet below.

There are two ways by which the caves may be reached from Katoomba, either by a track through the bush, or by a coach road. The bush track, although very rough and difficult, winds through some of the grandest scenery in the mountains. A guide is not indispensable, but, as the track is mainly indicated by a "blaze" on the trunks of the trees—at intervals of thirty yards or so—that is to say, a small piece of bark removed by a hatchet, which mark frequently becomes obliterated by time, there is great danger of becoming lost, or, as the Colonials would say, "bushed." Another difficulty in keeping to the track, lies in the myriads of gum trees, which monopolise the scene at every twist and turn. They cover the gullies, they swarm over the ridges, they are here, there, and everywhere; and the eye cannot rest upon any piece of earth, or rock, at any point of the compass, without being confronted by their naked, straggling, writhing stems. They are, indeed, a perfect vegetable commonwealth, all equal and all alike, and all matched in size and uniform, like a picked regiment.

There are blue, white, red, spotted, and many other kinds of gums, all included under the general name of eucalyptus. They shed their bark and foliage at different periods of life. In youth, the leaves spread horizontally, and, as if they found that attitude too hot, they turn their edges towards the sun as they grow older. For the most part, the trees are tall and contorted, slender in shape, and pale in complexion, so to speak. Many of them, in shedding their bark, have their stems half bare, with melancholy strips of bark hanging down, while others have on them nothing at all, the veriest savages, showing skins of pink, or silver grey. On the mountains one hears of iron bark, stringy bark, messmate, bloodwood, peppermint, sassafras, mountain ash, black wattle, and a host of others, disguised in Latin names, but, for the purpose of our description to-night they may all be compressed into the single word—gum.

After reluctantly quitting the Katoomba Waterfalls, we followed the Bathurst Road, a distance of two miles, bringing us to the top of Nelly's Glen, a terrible rift in the sandstone cliff, some 1,500 feet deep.

Nelly's Glen is one of the loveliest sights in the mountains. As one follows the path downwards, winding in and out like a gigantic serpent, the sun disappears overhead, and proceeding along the under-cliff, sunlight changes to twilight. In flood time the storm waters dash over the cliffs, and by the trees, to the green depths of the valley. All down the gully tropical vegetation abounds in the wildest luxuriance. The many varieties of ferns with their waving plumes, and tree ferns 30 feet in height, provide the delighted botanist with an inexhaustible treasure trove. Except for the musical ripple of the waterfalls, the occasional song of the birds, the hooting of the laughing jackass, and the screeching of sulphur-crested cockatoos, flying in flocks overhead, all nature seems to be enjoying in silence a summer siesta.

Emerging into the open daylight from the shady hollow of this romantic woodland, the bush track serpentines along what is known as the Kanimbula Valley. Twelve miles from Katoomba, Megalong was reached. From here we got a distant view of the Black Range, densely covered with vegetation from base to summit. Crossing Cox's River at this place, we came to a selection, the Colonial equivalent for a farmstead, which is owned by an aboriginal, who rejoices in the name of Billy Lynch, and at his log hut my two companions and myself had been recommended to stay for the night. Meeting, however, with a settler, who kindly offered us the shelter of his bark hut, we were presently regaling ourselves outside with the typical fare of the bush—damper and tea. The bark hut is a common object in the bush. It is made entirely from the bark of the stringy gum. Not only is it used in the construction of the roof and walls, but also in the composition of the chairs and tables, and affords a fine thick coverlet for the floor.

Preferring, however, the broad canopy of heaven for a roof, we camped by the side of a blazing log fire, close to Cox's River. Rolling ourselves in our rugs, we quickly discovered that we had disturbed an ants' nest, the occupants of which, swarming out of their citadels in the sand, vigorously attacked us on all sides, and it was only by extending the range of our camp fire that we managed to disperse them.

The night was of surpassing beauty. As we lay outstretched, gazing into infinite space, the waning of the moon gradually unfolded a magnificent panorama of the starry heights, the whole heavens being ablaze with masses of throbbing lights. Many of the constellations familiar in Northern latitudes had long since disappeared from the horizon in our long voyage to the antipodes, but others could be seen of equal brilliancy, including the Southern Cross.

Awakened at sunrise by a general chorus of birds whistling and piping, we resumed our journey, and had before us a tramp of 20 miles, attended by a series of somewhat startling adventures. About three miles from Megalong, we came to Little River, which runs through a romantic dale, very suggestive of Dovedale in Derbyshire. Hemmed in on both sides by banks sloping to a great height, densely covered with gum trees and sassafras, the great charm of this lovely gully lies in its utter solitude. Here we got bushed for four hours.

As we clambered up the slopes in search of the "blaze," we were surprised by the native bear, or Koala, with two beady eyes blinking at us through soft brownish-grey fur. Like most of the marsupial tribe, it is nocturnal in its habits, and lives on the trees, feeding on the young shoots and leaves. The cub is carried in a pouch, like the kangaroo, but when it has grown too large it is carried Hindoo fashion on its mother's back. A number of kangaroos, startled by our scrambling through the thicket, timidly raised themselves on their hind legs, and, aided by the muscular action of their long tapering tails, quickly outstripped our gaze by the bounding leaps they made over the low brushwood. An occasional lizard, basking in the sunlight, bright-eyed, and adorned with brilliant colours, reared its wondering little head, and then disappeared with flashing rapidity underground or among the decaying timber.

Here, too, "far from the madding crowd," the valley is the playground of the birds, and the glades echo and re-echo with the perpetual whistling and screeching of the feathered tribe. Red-breasts are there, as well as fantails and finches, and the beautiful lyre bird, with outspread tail, shaped like an ancient Grecian musical instrument. Shy and solitary, a great lover of these woods and dales, it is rarely ever seen, but its presence is well indicated by its loud and liquid call. The laughing jackass, too, with its great flat head, huge beak, and squat attitude, looked very droll as anon it started into a long and loud chuckle of laughter; while magpies, circling round and round us, inquisitively watched us from adjacent boughs, and flocks of black and white cockatoos, and gaudily-plumaged parrots helped to complete the wild sub-tropical charm of colour and song in this most delightful gully.

The sun had almost reached its meridian, and was glaring down from a cloudless sky, when we began the exhausting ascent of the Black Range, 4,000 feet above sea level, on the opposite side of Little River. Countless multitudes of eucalypti were still frowning upon us, some rising to a height of 150 feet, branching and brandishing their scanty foliage at the top, as if searching for the sunlight, looking ugly enough in the immediate foreground, but soft and pleasing to the eye in the distance.

A notice on a painted board, threatening trespassers with the utmost rigour of the law, caused us a good deal of amusement; and no wonder, the country looking as innocently unpeopled and as primeval, as when it first emerged from chaos. What with the heat from the rays of a semi-tropical sun, the little or no shelter afforded by the peculiarity of the foliage, and the scarcity of water, owing to the long drought then prevailing, one of my companions, by the time the top of the Range was reached, began to show signs of collapse.

Mention has been made that the caves could be reached, either by a track through the bush, or by a coach road. It was on this road, nine miles from the caves, that we now found ourselves. The colossal undertaking of constructing this great highway—Mount Victoria Road—was entrusted, in 1814, to Sir Thomas Mitchell, who, with the aid of 10,000 convicts, chained together in gangs, succeeded in two years in dragging this road over 100 miles right across the Blue Mountains. The scene from this road is a characteristic one.

Vast tracts of primitive bush and forest, unscaled cliff and untrodden gully, range upon range of wooded mountain, wanting only in the shining lake, and snowy peak of the Alps, to remind one of Switzerland, and the rarer interval of bright meadowland gleaming in the sunlight, make up a picture of wild beauty.

Passing along this road, looking for water and a habitation of some kind, we were presently overtaken by two horsemen, who gave us by the no means welcome assurance that neither water nor habitation was to be had until the caves were reached. Mr. Brown, the elder of the two—they were father and son—taking in the situation, immediately resigned a horse to the exhausted one of our party.

We now looked forward joyfully to reaching the caves without any further mishap, but we were destined to prove the truth of the old proverb, "Misfortunes never come singly," for, on proceeding a short distance, we found ourselves confronted by another danger. My other companion had fallen by the roadside exhausted. With great practical sympathy and good nature—quite characteristic of the colonial—Mr. Brown, who, by the way, is electrician at the caves we were about to visit, sprang off his horse, and assisted my second companion into the saddle.

In this sorry plight we again struck into the bush with the object of finding water. Failing, however, to find any, our good friend himself went in search, returning in half an hour, with a plentiful supply, of what has been so aptly described, as "the diamond of the desert."

The sun was getting low when we resumed our journey, the song of the birds was well-nigh hushed, and the harsh, croaking, chirp-chirp notes of the locusts were gradually dying away. In the stillness of the evening the weird note of the morepork, a species of nightjar, could be heard crying "morepork"; and outlined against the mystic moonlight, opossums would presently be seen popping out of their holes in the trees, and bats, and flying mice and squirrels floating about in the air like small parachutes.

Continuing through the bush, we came to Mount George, which dips 1,600 feet into the valley where the caves lie. About 500 feet or so from the top, the track turns sharply and abruptly round. Without any previous note of warning, we found our progress barred by a bush fire. Fortunately, the wind was blowing the fire and smoke away from us at right angles, but the track ahead was ablaze for some two or three hundred feet. For at least half a mile to the right of us, a line of flame was running along, leaping like a fiery tongue from tree to tree, and, sweeping along the ground, was consuming the scrub like chaff.

As retreat was scarcely possible, owing to the lateness of the hour, together with the condition of my two companions, the situation, to say the least, was both exciting and alarming, and, had it not been for the presence of mind of Mr. Brown, would have been positively serious. Mr. Brown, however, with whom bush fires are of frequent occurrence, lost not a moment in tearing a branch from a neighbouring tree, and then, bidding us quickly follow him, beat down the flames as we safely ran the gauntlet of the conflagration.

A further descent brought us to Mr. Brown's *châlet*, nestling on the mountain slope. Here we were hospitably received by the lady

of the house, and finally, just as the moon was peeping above the horizon, we took up our quarters at the Cave Hotel which lies on a flat at the bottom of a small circular valley, entirely shut in, and surrounded by this limestone mountain. It is within this limestone mountain, that the caves which we were about to explore, lie.

PART II.—THE CAVES.

In approaching the second part of my subject, I do so with the full consciousness that words are too poor, to express the feelings of wonderment and amazement which we experienced in wandering through the subterranean galleries of these most remarkable caves. They are situated, as I have stated, within this limestone belt, and they hide in their dark recesses, phenomena of rare interest to the geologist, as well as of pleasurable contemplation to non-scientific visitors. To see these caves once is to create a life-long impression.

They were discovered in 1841, by a Mr. Whalan and two mounted policemen, who were in pursuit of a notorious bushranger, named McEwan, who had retired for security into these mountain strongholds. In those days parties visiting the neighbourhood, for the purpose of hunting wild cattle, used to return full of queer and discredited stories of this romantic country. For about a quarter of a century after their discovery little, or no notice was taken of them. They were regarded by the few who knew about them, as remarkable freaks of nature, but allowed to remain unexplored, until some of their hidden beauties became so talked about, as to arouse the enthusiasm of the cave-keeper—Mr. Wilson.

The number of visitors increasing, amongst them some who did not scruple to remove many a crystal gem, it became evident that unless something was promptly done for their protection, their magnificence would soon be destroyed. The Government of New South Wales, therefore, took the matter in hand, proclaiming, in 1866, the district as public property. Mr. Wilson, owing to his intimate knowledge of the caves, was made keeper, and a staff of guides appointed to assist him, foremost among whom is Voss Wiburd, a thoroughly-trained and practical geologist. These men are still burrowing, and making continual efforts, to further develop the wonders of this cavernous region, which, it is believed, has subterranean galleries extending for upwards of 180 miles. In addition to the wonders of the caves, the district, as we have seen, is situated amongst some of the finest and most romantic bush and mountain scenery in Australasia, and is a perfect paradise for the artist, the naturalist, the botanist, the geologist, and the sportsman.

The caves are divided into two classes, viz., Day and Night. The Day Caves consist of three magnificent natural arches—the Grand Arch, the Devil's Coach-house, and the Carlotta Arch—and are simply so called, because the daylight streams into their entrances. The Night Caves, of which there are several, are the interior caverns in the mountain, into which a ray of natural light has never penetrated. That portion of the limestone mountain in which the caves are formed, runs six miles north and south, and the Grand Arch, and the Devil's Coach-house, the two principal Day Caves, run right through the

mountain to a depth of 400 feet, and have two entrances, front and back.

The Grand Arch runs east and west. The western entrance is approached by a short pathway leading from the Cave Hotel, is 60 feet in width by 70 feet in height, and is not unlike the approach to a railway tunnel. Along the walls, inside the arch, are caves running into the mountain, 10, 15, and 20 feet in depth, the bottoms of which are covered with fine dust, pulverised from the rocks lying about, by animals passing from one rocky hall to another, and in which the explorer sinks to his boot tops. Its rugged walls are varied by many rocky formations, and its ponderous proportions, and gloomily impressive outline, make it look like a portico to some great castle of Giant Despair.

Walking right through the arch, we reach the eastern entrance, a marvel of natural architecture, having a span of 200 feet. On the right is seen the Lion Rock, so called because of its resemblance to the king of beasts, which acts as a kind of sentinel to guard the archway. Immense rocks and boulders, in all shapes and sizes, worn as smooth as glass, by wallabys and other animals passing over them for centuries, are piled in confused heaps over the floor, looking as if they had been hurled about in wild fury by some giant hand. Midway between the floor and the roof, Mr. Wilson, the cave-keeper, had his sleeping place for 20 years, in the midst of kangaroo drives, and near to the haunt of a lyre bird. There he strewed his bed of ferns, grasses, and mosses, and certainly not even Robinson Crusoe, or De Rougemont, had a more magnificent dormitory. Ladies, too, before the Cave Hotel was built, were accommodated in this sepulchral-looking place with tents, with overhanging ledges for curtains, while bachelors, unconsciously imitating the Egyptians of old, used to select the softest stones for pillows, on which to lay their heads and doubtless dream of angels.

Upon leaving the Grand Arch, we find, on looking round, the Pinnacle Rock, rising over the archway to a height of 500 feet above the Cave Valley, forming a picturesque object in the landscape. As its sides are almost precipitous, few people have attempted to reach the top; indeed, the only successful efforts appear to be the guides'.

The Devil's Coach-house is next visited. It runs north and south, and is therefore at right angles to the Grand Arch, from which it is distant only a few yards. Why the peculiar title of the Devil's Coach-house was given is not quite clear, but the story goes that in early days one Luke White, getting benighted, fell asleep in the cavern, and dreamed that he saw his Satanic Majesty driving through with a coach and four, and actually heard the crack of the whip. Although White's story has never been doubted, it is generally supposed that his condition at the time must have been a great deal more spirituous than spiritual. The coach-house, as can be seen, is no mere doll's house, filled with quaint toy figures, but a huge den, a shady summer retreat for a race of Anaks. The view shows the light reflected on to blocks of black and grey marble, with which the floor is strewn. In flood time the storm waters dash these stones together with tremendous force, the roar of the torrent resounding



THE GRAND ARCH (Entrance to Caves). (See page 134)



like thunder through the cave. In such wild seasons, blocks of stone, a ton or more in weight, are moved a considerable distance, affording a fine illustration of the manner in which these caves have been hollowed out.

The interior of the cavern is a scene of indescribable grandeur. Lying about, in the wildest disorder, are tumbled blocks of limestone, making a scene of such grand confusion, as the soul of Doré would have loved to have pictured as the abode of some mythical dragon. By the people below, who look as if they belong to a race of pigmies, we are enabled to gauge the height of the roof above—300 feet—nearly as high as the dome of St. Paul's. High up in the roof are two natural openings, the larger being 25 feet in diameter; probably two blow-holes, through which the water spouted, in remote ages, when the district was covered with water. Scores of gaps, in the roof and sides, lead to cave upon cave, the bottoms of which are covered with bones. The teeth of bats and native cats, the backbones of marsupials and snakes, the wing-bones of birds, and other fragments of the animal world, are mixed together, as in a vast charnel-house.

The Devil's Coach-house, always beautiful, is an ever-changing scene. When for a short time in the afternoon the southern end of the cavern is flooded with the sunlight, then is seen at its best, the vastness, and wondrous beauty, of this huge chamber. The contrast between the grey walls, the weird and grotesque shadows cast by the projections hanging from the roof, the delicate shading of the many fantastic figures, lurking about in silent and forbidding places, and the rich colouring of the vegetation outside, make up a picture of wild beauty. Even after the rays of the sun have disappeared, and the cave is wrapped in shade, or in the pale moonlight, its beauties change from hour to hour, like the shadows on the mountain, leaving behind an impression not readily forgotten.

The Carlotta Arch, although the smallest of the three Day Caves, is by no means the least important. It stands at an elevation of 200 feet above the Cave Valley, and makes a beautiful framework to the bush and mountain scenery beyond. Fringed at the top by a number of limestone formations, it looks like a ruined window in some grand monastic pile, fretted and scarred by centuries of decay, its sides being draped by a pretty natural formation, like hanging curtains.

In order that we may understand the geological transformation, which nature has produced, and is still producing in this underground world, it will be interesting to briefly sketch the simple story, which science tells us, of the manner in which these caves have been formed, and of the silent and irresistible forces of nature, which have been at work on them for countless ages.

Anywhere along the coastline of New South Wales, after watching the surf "beating in vain against some rocky giant of the main," if we look inland, we shall see in the far distance, just such another line of cliffs as shown on the screen, the cliffs overlooking the Katoomba Waterfalls, Nelly's Glen, and many another shady Blue Mountain gully. If we look still farther across the Blue Mountains, we shall see the lofty heights of the Black Range, and beyond that, a further range of bold and rugged headlines, among which the Caves of Jenolan lie.

Science tells us that ages ago, the whole of this great extent of territory was covered by an ancient sea, its silent gorges being abundantly strewn with marine life.

If Sydney Harbour, with its mile upon mile of winding bays, could be drained of its water, and raised high and dry from its ocean bed, in a short while, all its many caves and hidden depths, would be thick with a luxuriant growth of vegetation, and would be exactly identical with the Blue Mountain gullies of to-day.

Such, then, as Sydney Harbour is to-day, so were the lovely gullies about the Jenolan Caves long, long ago—nay, they were even more lovely, for, where the sea washed the glittering sand which lay at Jenolan, the floor of the ocean outside glistened with a beautiful coral reef, which stretched along the shore line. Age upon age having passed away—compared with which man's life is but a hurried instant—a movement, or a series of movements, of the earth's crust, moved and burst this reef, tilting and raising it to its present lofty level, so that it now stands, with all its fossil corals and sea shells, some 3,000 feet above, and 100 miles away from its briny comrade the sea, under which it lay submerged in its lovely coral infancy.

Thus disturbed, innumerable openings and fissures were made, and then, by the action of the water, after the elevation of the reef, and the springing into existence of fresh-water streams, the water slowly, but surely, wormed its way through the solid grey rock, making a winding channel for itself, by washing away all the soft and movable limestone it touched, and so caves within the mass were made.

And now, more wonderful still, the water having since receded, the caverns thus hollowed and widened, have become transformed and enriched into rare visions of loveliness, by the rich profusion of stalactites, and stalagmites, which beautify them, so that of the old coral reef, which once gleamed so brightly under the water, there is now, to quote Shakespeare, "Nothing of it but doth change into something rich and strange," more bewildering; and more fascinating than ever.

The manner in which stalactites and stalagmites are formed, is as simple as it is amazing. Hanging from the roofs of the caves are limestone drippings. These limestone formations are called stalactites, and are caused by the rain water soaking through the limestone rock to the roofs of the caves. The water contains minute particles of lime, dissolved out of the rock, and as the water evaporates, the lime is left behind, and, as it continues to increase, assumes more or less fantastic shapes. When the water drips on to the floor, the lime deposited there grows upwards, forming stalagmites. In the course of ages the formations meet, and the twain become as one flesh. Everything, therefore, which is seen on the roof, walls, and floor is simply the result of the lime left behind by the dripping water. The rich rainbow tints and shades, which give such a charm to the formations, are caused by the water becoming coloured as it passes through mineral matter in the rock, such as copper, iron, and sulphur.

We now enter the Night Caves. The Day Caves, although grandly picturesque, differ as greatly from the Night, or Crystal Caves, as do the pearls in a necklace to the rough oyster shells which once concealed





THE MADONNA AND CHILD. (See page 137.)

them. Exposure to all kinds of weather has given to the Day Caves most of the lovely colouring, and sombre shades, which distinguish them, but the Night Caves, shut off from all atmospheric disturbance, have been preserved in all their virgin purity. Twenty miles of underground channels having been opened up, it is, of course, quite impossible in the short time at our disposal this evening, to make a complete tour of them. I propose, therefore, to take four of the principal, which contain almost every type of beauty, to be found in this subterranean world. These four caves are the Nettle, the Arch, the Lucas, and the Imperial, each containing an intricate network of chambers. With the exception of the Nettle and the Arch Caves, which are partly exposed to the atmosphere, the limestone deposits, hidden away in the dark recesses of the mountain, are for the greater part as white as driven snow, and of the most delicate and fragile nature. Wherever the eye rests, nothing is seen but myriads of formations, streaked with various colours. When the electric and magnesium lights, used for illuminating, are thrown on to the many crystalline formations, the effect is one of bewildering splendour.

We enter the Night Caves by means of a flight of steps, cut out of the solid rock, and we pass on the way an interesting formation of a greenish tint, caused by copper infiltration, called the Willows, from their resemblance to weeping willows.

Descending a few steps, we find ourselves in a chamber full of twilight. The general appearance of this cavern is like the silent cloisters of some grand old abbey, its gloomy recesses and dim corners, its rugged roof and walls, looking like the remnants of past splendour and glory.

Bending a little to the left, we come to a chamber with a group of figures, which look like half-finished statues. This chamber is called the Sculptors' Studio. These figures are tall and rough, some life size, some of heroic stature, and it would require no effort of the imagination to see in them many striking and distinct forms, only it is not always possible to reproduce these images in a photograph, as they are seen only at a certain angle.

Mounting some steps leading from the Sculptors' Studio, we reach an upper story, called the Ballroom. Why this unromantic name has been given to this beautiful chamber it is difficult to discover. To the lover of ancient buildings, it looks more like a ruined aisle in some old-world cathedral, the stalagmites rising from the floor, resembling a rich cluster of columns, carved with tier upon tier of stalactite formations, like water dripping from a series of fountains.

We now leave the Nettle Cave, and, by means of a flight of stairs, enter the Arch Caves. In our timorous progress along the floor the thin shell of limestone, of which it is composed, vibrates in imitation of an earthquake wave. In the centre of the cave is a snow white stalactite, extending from the roof to the floor. At one time there were five such pillars, but a Scotchman, Campbell by name, hacked down four, with the view of placing them as verandah posts in front of his sumptuous log dwelling. Probably he would have hacked away the remaining one, only he might have been afraid the roof would come tumbling about his head. In this cave are two small stalactites, which

the cave-keeper has carefully watched and guarded for 25 years, in order to ascertain the rate of stalactitic growth. Although always finding a drop of water at the end of these tiny pendants, which are not thicker or longer than ordinary lead pencils, he has never seen one drop fall, and yet the actual addition to the stalactite has only been half an inch, or at the rate of one foot in 600 years—longer than it has taken to build up our Empire. The rate of growth of a stalagmite is infinitely slower. According to Voss Wiburd—a very intelligent and reliable authority—whose observations extend over a considerable period, the rate of growth is computed not to exceed the thickness of an eggshell in 35 years, or one inch in 2,240 years.

The Lucas Cave, containing a number of large chambers, lies close to the top of the Grand Arch. The opening is very massive, and is ornamented by masses of water-worn rocks, which look like a curtain drawn aside over the entrance. Descending 80 steps beyond the entrance, we find ourselves in the region of perpetual night. The only signs of animated nature are small flies and gnats, and clusters of bats hanging from the roof. The intense silence of the place is almost painful. No responsible echo is heard when the voice is raised, the only sounds audible being one's quickened nervous breathing, and the ticking of one's watch. The air, in fact, has the gloom and silence of the catacombs.

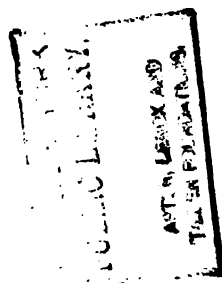
After a short interval the guide switches on the electric light, and we find ourselves in the Cathedral Cave, an immense cavern, the roof being 300 feet above.

Closely following the guide, and thereby avoiding a number of pits and openings, with which the caves are riddled, we shortly enter the Shawl Cave, having a number of pendant draperies hanging from the roof. These shawl formations are 15 feet in width, hang parallel to each other, and are mostly of pure white limestone, tinged with various colours. When seen at a distance, they look like the finest cashmere painted on the wall, but when a light is placed behind they are seen to be independent, semi-transparent slabs, of equal thickness, and of graduated width.

Leaving the Shawl Cave, we come to another chamber of great size, filled with ghostly shadows, called the Exhibition Cave, which has a span of 400 feet. Hanging from the walls is a mass of stalactites, which looks like a miniature Niagara in winter, and by the side is a remarkable likeness to a Polish Jew's head and body, complete in every detail, even to a partially-grown beard and a smile which won't come off.

A short distance away is the Broken Column, consisting of a stalactite and stalagmite joined together, in the course of the silent ages, into a stately pillar, and not even now devoid of beauty by an earth movement fracturing it at the base.

We next reach the Bone Cave, on the floor of which are strewn the bones of animals, cemented into a solid compound of bone and stone, by the liquefying of the rock above. Considerable attention has been given to the finding of organic remains in some of the caves in New South Wales—notably in the Wellington Valley. This, however, has not been the case at Jenolan, as excavations would disturb too many of the beautiful stalactite features.





A CATHEDRAL AISLE (Interior of Cave). (See page 189.)

Passing through more chambers, no less fascinating than those visited, we at length reach the extremity of the Lucas Cave, having climbed no less than 500 steps.

We now pass under the Grand Arch, and come to the Pulpit Rock, so called because of its resemblance to a pulpit. By the side of this are two flights of stairs, leading to the Imperial Cave, unsurpassed in all the known world, for the delicacy, and exquisite beauty of its limestone deposits. Darkness has brooded over this cave for ages and ages, as drip by drip, and molecule by molecule, its lovely objects have become fashioned into things which charm and shine, whose walls are clad in the beauty of a thousand stars.

[Up to this point of the lecture the bush and Day Caves' transparencies had been projected on to the Society's screen, but, in order to convey to the members a realistic idea of the dazzling nature of the limestone deposits in the Night Caves, the lecturer unfolded a patent crystalline screen, which he himself had designed and invented. The effect produced on the limestone formations by this special screen was marvellously beautiful, and elicited great admiration. The lecturer then proceeded to give a vivid description of 40 magnificent flashlight views of the sparkling rocks, fairy grottoes, crystal cities, cathedral aisles, statuary, delicate drapery, and other natural wonders with which the caves abound. Unfortunately, without the illustrations, it is not possible to reproduce the descriptions. Mr. Lambert then concluded as follows.]

If all these superb creations were the work of a painter or a sculptor, and were placed within the academy walls, they would be called by the art critics sweet and delicate fancies. How much sweeter are they as Nature's handiwork, made without hands or tools, and fashioned without imagination, and without a copy. A visitor to the caves once remarked, that the man who attempts to describe these caves is a fool. And he was not far out. Language is too poor, to attempt to describe the indescribably beautiful.

Before the lanternist extinguishes the light, and before emerging from the gloom of these silent caverns, which has become almost as natural as night, it is a fitting opportunity to remark, that in viewing these grand and stupendous works of nature, one becomes filled with emotion, when he reflects on the small and insignificant space man occupies in the economy of the Universe. And, further, we may well pause to ask ourselves what, after all, is the perishable nature of the greatest, and most beautiful monuments erected by man's genius, as compared with the indestructible character and rugged grandeur of a Devil's Coach-house, a Crystal City, or even the alluring beauty of a simple stalagmite formation as seen on the screen? And finally, we may wonder, how many ages have come and gone, since the Jenolan Caves were coral reefs in the azure sea!

JAPAN AND THE JAPANESE.

By A. C. MAGIAN, M.D., F.R.G.S.

[Addressed to the Society in the Geographical Hall, on Tuesday, February 6th, 1906, at 7-30 p.m.]

THE words "Japan and the Japanese" are not used by our friends and allies to express the meaning that we give to those words. Nippon, or Dai Nippon, is the name given to the Empire, and our word "Japan" is derived from "Nippon" in this simple way: The Chinese, with whom explorers from the West first came in contact, spoke of the island country close to their shores as "Ji-pun," which was the nearest approach to the correct name that they had obtained. Jipun—Japan. The similarity is obvious.

It was in 1542 that the first European set foot in the country. This was a Portuguese named Pinto. Seven years later Francis Xavier, the Jesuit missionary arrived and in a remarkably short space of time obtained many thousand converts to Christianity. After thirty years there were nearly a million Christians in the Land of the Rising Sun. Then it was thought that the new-comers were aiming at political power, and the Japanese Government, greatly alarmed, at once took measures to banish the new religion from the land. The priests themselves were crucified, buried alive, and burned at the stake. Forty thousand Christians were massacred, and many thousands more perished by the sword. For two hundred and fifty years after this the following blasphemous notice appeared in every village throughout the country: "So long as the sun shall warm the earth, let no Christian come to Japan, and let all know that the King of Spain or the God of the Christians or the Great God of all if he violates this command shall pay for it with his head."

For two and a half centuries Japan shut out all communication with the rest of the world. Then America forced her way in. In 1853 Commodore Perry, of the United States Navy, by an exhibition of force in the form of a powerful squadron, obtained concessions from the Emperor of Japan by which two ports were opened to American trade. Then England, through Lord Elgin, obtained further concessions. And so the country was opened up once more, and the Japanese—reluctantly at first, and then later with open arms—began to assimilate the knowledge of the West. But there was very strong opposition to the entrance of the foreigners from one section of the ruling powers of the country, and as a result a civil war followed. Japan, although nominally under the sole rule of the Mikado, was really under the rule of powerful princes and barons, who were afraid that the admission of the stranger would cause them to lose much of their wealth and influence. So they opposed the change with all their might, and many bloody battles were fought before

they were defeated and the authority of the Mikado recognised throughout the length and breadth of the land.

Japan to-day is the Great Britain of Asia. The area of the country is about one-fourth larger than that of the British Isles. Its population is greater in about the same proportion. The climate in the north is about the same as that of England. In the extreme south the heat in summer approaches that of India. The Japanese Empire is composed of about 3,000 islands, but of these only four are of any note, viz.: Hondo, Kiushu, Shikoku, and Yezo. In formation Japan is the crest of a submarine mountain ridge, and is almost entirely of volcanic origin. Even to-day it possesses volcanoes in activity and is subject to almost constant earthquake shocks.

SOME OF THE TOWNS.

Yokohama, the most important port of the Empire, is generally the port at which a traveller arrives. It is situated on a bay in the Gulf of Yedo, and was opened to the foreigner as a treaty port in 1859. It was partly destroyed six years later, but since that time it has rapidly risen to the position which it now occupies as one of the leading ports of the world. The reason for its marvellous growth is soon found. It is situated in a protected position and has a fine harbour. It is in the neighbourhood of the capital and in the centre of the industrial area of the country. It has good railway connections with every part of the Empire. It is well managed by the authorities and supplied with all modern improvements for the loading and discharging of cargo. It was the first port opened to foreigners, and is therefore the best known, and the natural advantages which it possesses have been supplemented by the construction of two splendid breakwaters.

One of the first lessons which Japan learned from the West was, that the way to advance her prosperity lay in building ships. Private enterprise started the venture, and a merchant of Osaka founded the "Three Diamonds" Steamship Company. Others quickly followed, and to-day one of the finest lines running to the East is the "Nippon Yusen Kaisha" (the Japanese Steamship Company). This native company has under its flag a fleet of more than seventy ships, with an aggregate of a quarter of a million tonnage. More than fifty companies are to-day running regular services of ships to Yokohama. To encourage native work the Government began to subsidise ship-building, and one company alone received £100,000 annually. As a result of this in ten years the number of ships was quadrupled. In the last four years Japan has trebled the amount of freight carried under her flag.

Yokohama is well built and the streets are regularly laid out. The houses are almost entirely of wood, and so unfortunately fires are frequent. Of the newer buildings in the town, mention may be made of the fine Custom House, the Town Hall, the Court House, the Post Office, and numerous other public edifices, all of stone or brick, and planned in the most improved European style.

The majority of the foreign residents live on the charming hill on the left of the town known as "the Bluff," and here again we find much modern architecture. The lovely Bluff Gardens are one of the

sights of the town. Forty-five years ago this place was a miserable swamp. There are about 600 English residents in Yokohama, and nearly 3,000 Chinese.

Yokohama may be considered the Liverpool of Japan, which, however, possesses another port more nearly comparable from the point of view of its position with our English seaport, viz., *Kobé*.

Kobé, the second port of the Empire, is nearer to the mainland of Asia than Yokohama, and a great deal of trade is now coming to this once unknown little village. It is now a thriving town of over 100,000 inhabitants, and threatens eventually to eclipse Yokohama in size and importance. It is the port of Osaka, the second city of the Empire, which is situated an hour's journey distant by rail. Here, as at Yokohama, we find the Europeans selecting the hillside for their fine villas and country houses, and at night-time the grassy slopes look as if they were lit up for some festive occasion.

Joined on to *Kobé* is the native city of *Hiogo*, from which it is divided by a narrow creek across which are a number of bridges.

The streets of the "model settlement," as *Kobé* has been called, are well kept, broad, and well lighted. The houses and offices of the merchants are all of modern construction, and generally provided with long gardens. The sea front is nearly a mile long, and charms the eye with its recreation ground and long stretches of green lawns. *Kobé* is one of the most agreeable places in the East to live in. It is a real pleasure spot, and life here is spent under the easiest conditions possible to the business man abroad. There are large shipbuilding yards, good docks, and several mills. Also a racecourse, tennis grounds, cricket fields, plenty of boating and bathing, and several club-houses. Business and pleasure are both provided for.

Nagasaki.—This was the first port to become known to the outside world, and is still of much importance, although it has been long ago outstripped in the race for foreign trade by both Yokohama and *Kobé*. It has a fine harbour, good docks, and several huge engineering works and shipbuilding yards. In the immediate vicinity coal is to be found in abundance, some of the local mines putting out half a million tons annually. The European settlement is but small although the climate is mild and pleasant. At the mouth of the harbour is the island of Pappenburg, where the massacre of Christians took place in the seventeenth century. It is also historically of interest in connection with the fact that during the long period of Japan's isolation a few Dutch merchants were allowed a small trading settlement here on the little island of *Deshima*, although under conditions of great hardship and servility. About 300 Europeans are settled in the town, and some 1,000 Chinamen.

Tokio is the London of Japan. It is in area probably the largest of all the large cities of the world. It is situated at the head of the Gulf of Yedo, on the Sumida river, and 300 years ago it was a fishing village of no importance whatever. Then one of the great princes of the day, the Shogun *Iyeyashu*, made it his headquarters and fortified the town. From that date it grew rapidly in size and importance. until to-day it has an area of nearly one hundred square miles, and a population, with its suburbs, of about two millions. Let us see what troubles and trials the city has passed through to get to this position.

At the beginning it was twice nearly destroyed by civil war. Later, two organised attacks were made upon it by enemies of the Shogun, after which it was practically destroyed by fire. In 1657 it was destroyed by fire. In 1668 it was again razed to the ground by fire. The number of times since then that it has been partly burnt down has been forgotten, but on an average it has been the scene of great fires almost every year. It was burnt down in 1845. In 1892 fire destroyed 4,000 houses. The Houses of Parliament were built in 1890, and burnt down to the ground within two months; nevertheless, they were rebuilt in 1891. The Mikado's Palace was built in 1873, after the old one had been burnt down. The most magnificent temple of the Shoguns was burnt down in 1874, and was rebuilt. In 1650 the Castle was destroyed by earthquake. Again, four years later. Again after another year. On each occasion a large part of the town was also destroyed, and the loss of life was terrific. In 1855 it is estimated that nearly 100,000 people lost their lives. In 1773 about 40,000 people were killed by earthquake. The town has been several times almost depopulated by plague, pestilence, famine, and drought. In 1773 about 200,000 people died from plague. Cholera, typhoid, and low fever followed. A flood nearly finished off the remainder of the inhabitants. Surely, if ever people deserved pity, the unhappy inhabitants of the first city of the Empire of Japan would have had the first claim.

But the Japs were not disheartened. They rebuilt their town and waited for better days. In 1872 they established railway communication with Yokohama. The town was opened to foreign travel, and later to foreign residence. Trams were started in 1882, electric light in 1885, telephones in 1890. Exhibitions of international repute were held in 1877, 1883, and 1890. Houses of Parliament were opened in 1891. A University was built, and degrees are now granted in all the various faculties. Public hospitals were opened. An arsenal was started to manufacture the celebrated Murata rifle. Cotton, woollen, and paper mills began to spring up all over the country. A proper system of fire prevention was inaugurated, and fire engines on the latest plan were first purchased from abroad and then manufactured in the country. The town was put under proper police control, with a service of some 4,000 policemen, and almost innumerable police stations efficiently connected by telephone. Plague and cholera have been nearly stamped out by the introduction of a better system of house hygiene and by the provision of a pure water supply. Education is now compulsory, and a yearly grant of £170,000 is made to provide proper instruction and efficient teachers. Every year the city is becoming more and more Europeanised, and all possible improvements are being added.

Osaka, "the Manchester of Japan," is to-day the second city in the Mikado's realm. It is 250 miles from Tokio, and, although as much a port as Manchester is, conducts almost the whole of its foreign trade through the port of Kôbé, which is its Liverpool.

Osaka has a population of nearly a million. It manufactures great quantities of cotton and woollen goods, and seems dotted all over with innumerable mills and factories. It is well supplied with railways, and has three railway stations. It may also be considered the rice

granary of Japan. In the centre of the town is the castle, now used as a huge barracks. Not far away is the mint, which, copied from an English model and erected under European supervision, is now run entirely by the Japanese themselves. A splendid college, a museum, and many ancient princely palaces are other sights of the town.

Now consider. This town has doubled its population in the last four years, and the cotton trade is increasing by leaps and bounds. As one spinner said to me, "We intend in a very short time to entirely substitute home-spun for foreign yarns." A School of Commerce has been established in the city, which has 300 pupils and 30 teachers. It was proposed to grant degrees in commerce, but this the Government decided to be a worthless idea and rejected it. My friend continued, "Lancashire's sale of yarn to Japan is going rapidly, and India's has practically gone, but we are importing as much raw cotton as we can get." What is the significance of all this?

Osaka stands in the delta of the River Yodo, and is almost two miles from the sea proper, so it is easy to understand why it prefers to have Kôbê for its port, since the latter town has every accommodation for shipping and is only twenty miles distant, with perfect railway communication. The River Yodo divides the town into a number of segments, and makes of it a sort of Eastern Venice.

Close by the river are sugar-refining works. Although sugar is considered a luxury in Japan its manufacture is increasing very rapidly, so much so that more than 30,000 tons of sugar are refined in Osaka alone. All along the banks of the river one hears the roar and rattle of machinery, and many new mills are to be seen in course of construction. When we consider that the export of cotton yarn has increased from £6,000 worth to £3,000,000 worth in eight or nine years we can understand the magnitude of the change.

The Castle of the Shoguns is one of the sights of the town. It is of great age and really marvellous construction. Its massive walls are composed of huge blocks of granite, many of these blocks measuring as much as 50 feet by 10 feet by 6 feet. It was regarded as one of the finest strongholds of the dynasty, and the reigning Shoguns always took care to put a reliable governor in charge.

There are not many Englishmen in Osaka; probably not more than two or three dozen, most of whom are engaged in missionary enterprises.

Kioto.—The old sacred capital of the country lies right in the heart of Japan, encircled by mountains and traversed by the Kamo river. It has a population of about 400,000, and gives one the idea of a city entirely devoted to idolatry. It is so full of temples that it is difficult to go more than a few yards without seeing one. As a matter of fact, it possesses considerably over a thousand temples and more sacred shrines than a visitor would care to count. For eleven hundred years it was the residence of the Mikado and ranked as a holy city.

Kioto is one of the most beautiful cities of the Empire, and its wide, clean streets, its delightful river banks, and the magnificence of its palaces and temples combine to make it unique among the cities of the Far East. Although shorn of its former glories, Kioto is still a busy manufacturing city, and is the centre of the silk industry.

Kioto is supplied with water from Lake Biwa. This remarkable sample of native engineering skill could not be surpassed by many others at home. The main portion of the aqueduct is over seven miles long. It traverses two mountains, and has every modern improvement in the way of tunnelling, locks, shafts, embankments, and viaducts. The water power is further utilised to generate the electric supply of the town.

Hakodate is an important port in the northern island of *Yezo*. It has a splendid harbour, and is situated 440 miles from *Tokio*, with which town it is well connected by rail and wire. It has a large coasting trade as well as an extensive foreign business. Its climate is very severe in winter, and snow generally lies on the ground until April. It has a population of about 80,000. There is but a mere handful of foreigners in the city.

Having now considered a few of the chief towns and ports of Japan, let us turn our attention for a little while to the people who inhabit them, and briefly study some of their manners and customs, many of which undoubtedly differ very much from those of the Western world.

MANNERS AND CUSTOMS.

1. *Modes of Travel*.—To begin with, carriages and cabs do not exist as such in Japan. The usual town vehicle is the "ricksha," or, as it should be called, the "jinricksha." This "man-power carriage," so well known at the present time throughout the East, is not a Japanese invention, but was introduced into the country from China some thirty years ago, and immediately found favour in the eyes of the inhabitants of "Dai Nippon." Its general appearance is well known and needs no description here. Suffice it to say that the cost of such a vehicle is but small (a common one can be bought for the sum of thirty shillings), and that travelling in them is an easy and rapid mode of getting about. There is also the "kago" or travelling chair, and the old-style "norimon" or "norimono," which is still used by some of the more conservative of the old nobles of the country. The kago is a kind of hammock swung from a pole, and the norimono might be described as the Japanese sedan chair. The ox-cart is found in parts of the island, and horses and mules are also used as pack animals for the conveyance of merchandise and farm produce; but, speaking generally, one might say that the men themselves carry most of the stuff which we in England would consider could only be conveyed from place to place by horses or motor power. There is, of course, a splendid service of trains between all towns of any importance, and the ricksha is only used for short-distance work. Many of the country roads are crossed by rivers, and here the ferry-boat comes into prominence, both people and their conveyances (rickshas, pack horses, and waggons) being ferried over in large solidly-made boats, which are propelled by punting poles and a stern oar.

The rivers generally are not of much use for navigation, as they are shallow and have a constantly shifting bed. In many cases the bed seems out of all proportion to the size of the tiny stream flowing through. In the rainy season, however, the river may become so swollen as to overflow its banks and cause much damage to the

surrounding land. Again, the bed of the stream, besides shifting, also fills up, until at times it is actually higher than the fields on either side. Consequently the farmers very often have to construct huge embankments to prevent damage being done to their crops.

Some of the rivers, having their source in high mountain land, form rapids, of which perhaps the best known are the "Fujigawa." Even these (except when swollen after rain) are too shallow to be of much use. Personally, I remember descending these rapids, and must say that I found them very slow "rapids" indeed. It required the united services of four men and a boy to get me down them in a miserable cockleshell of an orange box, which by courtesy was called a boat.

Railways were started in Japan in 1871, and in less than a year Tokio was in communication with its port of Yokohama. Rapidly a network of lines sprang up all over the country. The initial cost was very heavy, for the greatest difficulty was experienced in constructing bridges over the rivers, whose treacherous banks have been already alluded to. At first material and engineers were brought from England; then very soon all the material was made at home and native engineers replaced the foreigners. This is always the way in Japan. Her people love to be taught, but once they have grasped the subject they are ready to start for themselves and apply their knowledge.

2. *Telegraphs and Telephones.*—Telegraphs were introduced at the same time as the railways, and were installed with characteristic thoroughness in every town of any importance throughout the country. With regard to telephones, one ought to say that Japan was one of the first nations to employ them, and to-day the demand for connections is such that the Government is put to great pressure to keep up the supply.

3. *Education.*—Of late years the system of education has been entirely remodelled. The old system of naming the seasons and counting the flight of time has been thrown aside and the Gregorian method adopted in its place. Elementary education is compulsory, and there are special colleges for naval and military instruction, and others for arts, science, medicine, and agriculture. The Imperial College of Engineering at Tokio is a specially praiseworthy institution, and has turned out some of the smartest engineering experts of the day. Daily newspapers are now quite common, and even the small country towns are provided with good literature. Free libraries are also being introduced on a fairly extensive scale. The University at Tokio is worthy of special note, even apart from its high educational value. It is situated in some of the most lovely grounds to be found in the kingdom.

4. *Home Life.*—The simpleness of the Japanese home is apparent to all who have but seen a picture of a native house and its occupants. The house itself is most commonly of one storey only, on account of the danger from earthquakes, and consists in the day time of a floor and a roof which is supported by posts at the corners. At night the shutters are drawn round, and then the house has the addition of walls. Furniture is chiefly conspicuous by its absence; indeed, the only things found in an ordinary room are mats, screens, a cushion

or two, tea things, a single flower vase, and a fire box. After this description, one can easily understand that it is possible for a poor man to furnish a house completely by the expenditure of not more than twelve or thirteen shillings. The houses are kept so scrupulously clean, and they contain so little furniture, that one can also understand the freedom from many common European diseases that the Japs are favoured with. The epidemics of plague and cholera which have so often devastated the country must be put down to the very defective system of drainage. Of late the sanitary authorities have taken this matter seriously to heart, and sweeping measures have been carried out to deal with the evil.

The simplicity of the native diet is also a matter well deserving of mention. The staple article of diet is rice, and no person is considered to have made a meal unless he has eaten well of this national food. Mutton is almost unknown, as sheep will not live on the sharp-edged grass of the native pastures. Beef was at one time much partaken of, but the fashion has died out. Fish is freely eaten in the towns and at villages on the coast, but in the interior of Japan the people are almost of necessity vegetarians. It seems strange to us that bread, butter, milk, jam, meat, potatoes, and pudding do not figure on the ordinary native dining-table at all. The national dishes are cooked rice, vegetable soup, raw fish, cooked fish and lotus roots, young bamboo shoots, eggs, chicken, radishes, and egg-plant cooked in a variety of ways. The national drinks are tea and saké—a sort of whiskey made from rice. The national dress, like the diet, is also very simple. Coats, waistcoats, trousers, collars, and ties are not worn by the men. Skirts, jackets, hats, and bonnets are unused by the women. Boots and shoes, gloves and mufflers are equally neglected by the average man and woman. Both sexes dress themselves in “kimonos.” Sandals take the place of boots. Fancy sunshades and umbrellas are used by the ladies instead of hats. The simple life is indeed forcibly expounded by the Jap.

5. *Gardening.*—The Japanese are the landscape gardeners of the world *par excellence*, and they have a wonderful eye for the beautiful. Their public parks are an example to the world. There are no dreary wastes, no long, stiff avenues, no hard, stony paths, no unused ponds to be seen there. Instead, we see rustic bridges, shady nooks and corners, zig-zaggy tracks lined with flowers of every hue, rippling streams, open-air cafés, boats gliding along on a silvery lake, trees bending beneath their weight of lovely blossom, happy children playing on the greensward all unhindered by any forbidding notice. One has often compared these delightful pleasure spots with some of our public parks at home, and the advantage does not lie with us.

6. *Oddities.*—The Japanese cultivate the blossom of their trees at the expense of the fruit. Hence it is that the cherry-trees, with all their wealth of glorious blossom, do not produce cherries which would at all compare with ours. They are small, but, wonderful to relate, have no stones. The oranges have no pips. It seems almost uncanny. Japanese carpenters plane towards themselves, instead of away from them as we do; the teeth of their saws are set the reverse way to ours; their screws work from right to left instead of from left to right; They use an ink line instead of a chalk one; they more often use

string than nails. Japanese writing starts where ours ends; it reads from right to left and from below upwards. They use a brush instead of a pen. Their meals begin with liquids and end with solids, exactly the reverse of ours. Japanese mourners dress in white and not in black. We adorn our houses with pictures and vases and curios and articles of virtu; the Jap puts them out of sight, and only brings them into view on special occasions for the benefit of special friends.

7. *Amusements.*—The Japanese are fond of all sorts of games and healthy exercise. Wrestling and Jiu-jitsu are too well known to need more than a passing remark. At Tokio wrestling matches are held twice yearly, for ten days at a time, in the public gardens. Boating is another favourite pastime which is much indulged in. The whole nation is inordinately fond of bathing and swimming. The ordinary man takes a bath at least once a day. The water is generally hot—too hot to be comfortable to the foreigner until he becomes accustomed to it.

8. *Religion.*—Shintoism is the State religion, but Buddhism has perhaps more hold on the people. Christianity is making rapid strides under the strenuous efforts of the missionaries. There is complete toleration of any form of religion, and the people are open to learn the teachings of the faith of the West.

THE FUTURE OF JAPAN.

To-day Japan is known as the Great Britain of the East. It is impossible to believe that the country will ever relapse into its former state. All that one would care to say with regard to this wonderful Land of the Rising Sun is summed up in this little phrase, "Wait and hope."

PROCEEDINGS AT THE OPENING OF THE NEW PREMISES
AND THE CELEBRATION OF THE TWENTY-FIRST ANNI-
VERSARY.

THURSDAY, OCTOBER 19TH, 1905.

At a meeting in the Manchester Town Hall, held on October 15th, 1884, the Mayor (Mr. Philip Goldschmidt) in the chair, the Right Rev. the Bishop of Salford (the Right Rev. Herbert Vaughan) moved, Mr. John Slagg, M.P., seconded, and it was unanimously resolved:—

“That the Manchester Geographical Society be now established.”

The twenty-first anniversary of this day was Sunday, October 15th, 1905. The event was celebrated by the opening of the New Rooms, and the holding of a *Conversazione* therein, on Thursday, October 19th, 1905.

The new home of the Manchester Geographical Society is in St. Mary's Parsonage. The building overlooks the open square, which is one of the few oases in the city. The situation of the building being on the westerly side of the square, there is one frontage to the open space and another to the River Irwell. The design of the building is simple but dignified and eminently suitable for the purposes for which it will be used. The materials selected for the front elevation are red pressed bricks relieved by buff terra-cotta, the whole of the staircase and corridors are of fireproof construction, and the thorough and efficient lighting of all parts of the building has been most carefully arranged. A hydraulic passenger elevator provides access to all floors, and the whole of the building is lighted by electricity. The Society's Rooms are situated at the top of the building, and consist of spacious Members' Room, Library and Map Room, Museum, Offices, etc. There is also a large Lecture Hall which will seat over 200 persons; this hall has been specially designed for lectures, has the most modern appliances for regulating the lighting, and is equipped with a very fine electric lantern having all the latest improvements, which has been presented to the Society by Mr. E. W. Mellor, J.P., one of the Trustees of the Society.

A short account of the proceedings which have resulted in the provision of this new building will be of interest.

At the end of 1900, when the lease of the old premises expired, the Council of the Society decided that, though the proposal of the Secretary to create a fund to erect a building for the Society as its own was a very desirable one, it was not feasible at that time, but the best way to provide the requisite accommodation for the Society was to form a company to take a lease of the land and to erect a new building, the upper portion of which should be for the use of the Society and the

lower portion to be let off to tenants, the Society's interests being safeguarded in various suitable ways. An appeal was made to the members of the Society, asking them to undertake to apply for shares in a company, so that an agreement for a lease might be entered into. The members, in response to the appeal, promised to invest sums amounting in all to £5,000, which encouraged the promoters to proceed with the scheme.

Two of the Trustees of the Society, Messrs. E. W. Mellor and Harry Nuttall, personally entered into an agreement with the Dean and Canons of Manchester to take the land on lease for 999 years, and upon the successful flotation of the company, they transferred to it all the benefits of the agreement, after having for over two years generously undertaken the responsibility of personally carrying the same into effect should the scheme unfortunately fall through. Plans were drawn up, and after considerable difficulty and delay the designs prepared by Messrs. Sankey and Cubbon, architects, Manchester, were accepted, upon which the total cost was estimated at £8,500.

At the end of 1903 a prospectus was issued to the members of the Society, and at the same time an appeal was made by the late Secretary (Mr. Eli Sowerbutts) asking the members to support the company in carrying out the only scheme then practicable.

The requisite amount of shares having been applied for (£5,040) by less than forty of the members, tenders were invited from various contractors, and that of Messrs. Wilson and Toft was accepted, and they have very satisfactorily and reasonably erected the building in accordance with the designs decided upon.

The ceremony of opening the New Rooms was performed by the Right Hon. the LORD MAYOR (Sir T. T. SHANN), at 3-30 p.m.

The Lord Mayor was received in the Entrance Hall by Messrs. Harry Nuttall, J. Howard Reed, and T. W. Sowerbutts, on behalf of the Building Company, and conducted to the Members' Room, where he was welcomed by the Rev. S. A. Steinthal and other members of the Council, and also by the invited representatives from other societies.

Mr. STEINTHAL then conducted the Lord Mayor to the door of the Lecture Hall, where a key was presented to him, with which he opened the door and proceeded to the platform.

The key was of blued steel, with a gold plate let into the handle, one side being enamelled, with the arms and name of the Society displayed in colours, and on the other the inscription: "Presented to the Lord Mayor (Sir T. T. Shann) on opening the New Rooms, October 19th, 1905."

His Lordship was supported on the platform by the Rev. S. A. Steinthal (in the chair), and Colonel George Earl Church (representing the Royal Geographical Society), the Vice-Chancellor of Victoria University (Dr. A. Hopkinson), the President of the Chamber of Commerce (Mr. Harry Nuttall), and the High Master of the Grammar School (Mr. J. Lewis Paton).

Others present were: The Lord Mayor Elect (Councillor J. H. Thewlis), the Mayor Elect of Salford (Alderman Frankenburg), Sir Bosdin Leech, Mr. C. Collman (Consul for Germany), Mr. S. Oppenheim (Consul for Austria-Hungary), Professor T. H. Core, Professor W. Boyd-Dawkins, Mr. E. W. Mellor, Mr. D. A. Little (Hon. Treas.), Sir James Hoy, Colonel H. T. Crook, Mr. N. Kolp, Mr. Hermann Woolley, Mr. W. S. Kinch, Mr. J. E. Balmer, Mr. F. Zimmern (Hon. Sec.), Mr. J. Howard Reed (Hon.

Sec.), Mr. John Philips (Postmaster), Mr. C. W. Sutton (Chief Librarian), Mr. Councillor Snaddon, Mr. Joel Wainwright, etc., and representatives of the following societies: Tyneside Geographical Society, Mr. H. Shaw; Amateur Photographic Society; Mr. F. W. Parrott; Lancashire and Cheshire Antiquarian Society, Messrs. William Harrison, J. J. Phelps, and G. C. Yates; Manchester Astronomical Society, Mr. W. C. Jenkins; Manchester Athenæum, Messrs. John Roberts and Thomas Schofield; Manchester Field Club, Rev. J. S. McCubbin and Mr. A. Griffiths; Manchester Field Naturalists, Messrs. John Kay and Joseph Lunt; Geological and Mining Society, Colonel G. H. Hollingworth; Literary and Philosophical Society, Mr. Francis Jones; Philatelic Society, Dr. R. F. Chance and G. F. H. Gibson; Photographic Society, Messrs. W. E. Wood, W. B. Wood and C. H. Coote; Society of Architects, Messrs. J. W. Beaumont, J. W. Mould, and E. Hewitt; Statistical Society, Messrs. F. Brocklehurst and T. Gregory; Horticultural Society, Messrs. James Brown, J.P., F. Robinson, and C. Paul.

Apologies had been received from the President (H.R.H. the Prince of Wales), the Right Hon. Earl Egerton of Tatton, the Right Rev. the Lord Bishop of Manchester, the Right Rev. the Bishop of Salford, His Worship the Mayor of Salford, the Right Hon. A. J. Balfour, M.P., Sir W. H. Houldsworth, M.P., Sir H. F. de Trafford, Sir F. Forbes Adam, Dr. J. Scott-Keltie, Sir J. Leigh, M.P., Sir William Mather, Mr. C. H. Bellamy, Mr. J. C. Chorlton, J.P., Mr. J. G. Groves, M.P., Mr. H. Philips, J.P., Mr. Harry Sowler, J.P., Mr. J. D. Wilde, M.A., and Mrs. Rylands.

Sir Arthur Bigge wrote, on behalf of the Prince of Wales:—

“2nd October, 1905.

“I am directed by the Prince of Wales to express to the members of the Manchester Geographical Society his regret that as their President he cannot be present on the occasion of the opening of the new buildings of the Society on the 19th inst. But on that date His Royal Highness leaves England *en route* to India.

“His Royal Highness congratulates the Society on the celebration of its twenty-first anniversary, and hopes that the new and more commodious premises will result in still greater success in the work of the Society.”

Mr. Balfour's secretary wrote:—

“Mr. Balfour notes with interest that the occasion will commemorate the attainment of twenty-one years' existence of the Society. It will not in any case, however, be possible for him to be present, for on the 19th inst. he is to receive the freedom of the city of Edinburgh.”

The CHAIRMAN (Rev. S. A. Steinthal) said: If this were the right time and place for such a purpose it would be unnecessary to explain why the Council of the Manchester Geographical Society have invited the Lord Mayor to open their new premises on this the twenty-first anniversary of their foundation. For many years upon the Bench and in the Council Chamber has Sir Thomas Thornhill Shann served the citizens of Manchester, and on those years of service not a shadow has ever fallen. But it has

not only been in public that he has served; in the committees and in constant attention to the unseen details of municipal administration has he earned the respect and esteem of his colleagues, who at last called him to accept the highest honour they could confer, the chief magistracy of his native city. In his new office he has shown his united efficiency, judgment, and diligence in the performance of every duty he has had to perform. No man is more the servant of every inhabitant of the city than the Lord Mayor of Manchester. Every one can claim his help, and no one who has experience of the multitude of institutions connected with our Council, our charities, our educational, social, artistic, recreative and religious associations ever found Sir T. Thornhill Shann wanting in sympathy or co-operation. He has been exceptionally tried. A dark cloud of industrial strife threatened not only the city, but the whole cotton manufacturing district with distress, the extent of which no one could foretell, when he stepped in, and, with business-like good sense, judicious firmness, and genial tact, brought the leaders of the employers and employed together, and so influenced their deliberations that the crisis was avoided and untold suffering has been prevented. The Lord Mayor has represented the city with dignity and honour when our King and Queen graciously visited us, and His Majesty conferred upon him the marked symbol of his approval. Honoured by his sovereign, beloved and respected by his fellow-citizens, we welcome our Lord Mayor to-day and offer him this key to open our new Lecture Hall, a poor material emblem of that spiritual key by which he has opened for himself a way into the hearts of all his fellow citizens.

In declaring the rooms open, the LORD MAYOR said: The fact that the Geographical Society has been able to provide these new premises, and that for twenty-one years the work has flourished, are both matters of great interest to the city, and call for sincere and hearty congratulations. To no commercial community in the world is a knowledge of geography of greater importance than to Manchester, and the Council of this Society deserve our warmest thanks for all they have done in the diffusion of sound instruction in this important department of education. The work of the Society has been fostered by many learned and distinguished men, whose services are so well known and appreciated that it is hardly necessary for me to go into detail regarding them, but I can readily recall the visits of such men as Stanley, Nansen, and Captain Scott of the "Discovery." I am sure, however, I shall receive the hearty support of all connected with the Society if I very briefly refer to the love, honour, and esteem in which we hold the Chairman of the Council. For more years than I can remember, the name of the Rev. S. Alfred Steinthal has been honourably associated with many of the most noble undertakings of Manchester public life. During a long and vigorous life he has devoted himself with great zeal and success to work of various kinds, all of the greatest value to the community of which he has so long been a leading citizen. We remember with gratitude the long years of hard work rendered by him in the cause of helping suffering children. The Children's Hospital and Dispensary benefited immensely by his services as Hon. Secretary, and it must be a real pleasure to him to know how strong a hold this charity has in the hearts of our fellow-citizens. Education has always found a warm friend in Mr. Steinthal, and he has furthered its extension in many directions, not only by speaking, but also by the giving of personal services—the

highest form in which we can help forward any cause whose progress we have at heart. Mr. Steintal has been a great worker and a zealous advocate. At Lower Mosley Street he has fostered Sunday Schools and Evening Schools, and at the Union of Lancashire and Cheshire Institutes he was ever to the fore in the furtherance of education for working folk during the long term of years that he was a member of the Council of the Union. When famine visited India, Mr. Steintal did much to bring about the success of the fund raised in Manchester for the relief of the sufferers. I have only ventured to mention a few of the undertakings in which Mr. Steintal has occupied a leading part. Of his work for the Geographical Society you are best able to assess the value. It is his happy lot to see the fruits of his labours in the great success which continues to attend the work of the institutions for which he has laboured during a long and devoted life. Mr. Steintal stands high in the estimation of his fellow-citizens, and I am sure we all earnestly hope that he may long be spared as a great example of what can be accomplished by a man of high instincts and noble aspirations.

The VICE-CHANCELLOR OF VICTORIA UNIVERSITY (Dr. Alfred Hopkinson), in expressing pleasure at the presence of the Lord Mayor, congratulated him on the way in which he had filled that office for two years. Dwelling on the importance of geographical study in education, Dr. Hopkinson said that in the first place it had direct practical results. A fuller knowledge of the geography of the country would have saved thousands of pounds and many valuable lives in the South African War. From the point of view simply of education geography should lie at the bottom of a large proportion of studies. He did not believe any one could have a proper grip of the history of any period unless their imagination was stimulated, their ideas made more accurate, and their memory aided by a careful study of the countries in which the historical events happened. The study of the humanities, as well as the study of science, must be based largely upon geographical knowledge.

Colonel GEORGE EARL CHURCH (Vice-President of the Royal Geographical Society) said: The Manchester Geographical Society comes of age at the beginning of the real Christian era, when the future is full of promise for mankind, irrespective of race or creed. The epoch in the world's history which we have just closed opened with the discovery of America. Humanity since then has groped along, from mistake to mistake, due largely to ignorance of geography. I may claim your attention for only a few minutes while I try to elucidate this. In 1492 the length of a degree of longitude was not even approximately known. The standard of measurement was the Italian league, and, for more than two centuries afterwards, it was the only one used by the Italian, Spanish, Portuguese, and French navigators. The Roman or Italian mile was eight Greek *stadia*, of 600 Greek feet each, equal to 606·75 English feet, and the league was four Italian miles. Cosmographers had differed greatly in their estimates of the circumference of the earth. Aristotle made the degree 34·7 leagues, Archimedes 28, Strabo 21·875, Ptolemy 15·625. In Bagdad, about A.D. 833, Caliph Almamoun had caused measurements of an arc of the meridian to be made, which, according to several cosmographers, gave an average result of 14½ leagues to the degree of a great circle. This length Columbus adopted for all of his voyages, and never changed it. Doubts have been

urged that the Arabic mile employed in the calculation was not the equivalent of the Italian one. In general, the standard fixed in the voyages of the "Age of Discovery" was $17\frac{1}{2}$ leagues to the degree; but this was short of the truth, as subsequent measurements have shown it to be $18\frac{7}{5}$ Italian leagues. The length of a degree which Columbus adopted made the circumference of the earth 20,400 Italian miles, against the modern estimate of 27,000, or a difference of 6,600 miles. This was more than sufficient space for the insertion of the whole of North America. It is notable that ancient geographers gave an abnormal width to the land area of the old world, and Columbus must have been largely influenced by the maps of the period, especially by Martin Béthaim's globe, of 1492, which made Asia extend to a degree of longitude which is only about 600 nautical miles west of the coast of California. Thus Asia was pictured as almost eliminating the northern half of the Pacific Ocean. No wonder, therefore, that Columbus believed that, when he reached the New World, he was among the outlying islands of the east coast of Asia. In reality, had his voyage not been barred by the western continent, he would still have had before him a stretch of about 9,000 nautical miles' sailing distance before reaching the Philippine islands. It is safe to say that his fleet was neither fitted nor provisioned for any such voyage, and that either he would have returned or have disappeared for ever in his quest for the wealth of the Orient. Thus we may be thankful to America for having discovered so great a man as Columbus. From the remotest period of history until the first voyage of Columbus, Europe had faced eastward, but the "Orient" was now in the west, and apparently within easy reach. A vast horizon was suddenly unrolled to the ambition of Rome and the maritime powers of Europe. To whom did the immense wealth of heathendom belong? Certainly not to the numberless millions of pagans! Pope Alexander VI. settled the question at once by issuing his famous Bull of 1493. Of his "own pure will and plenitude of apostolic power" he drew a datum line from the Arctic pole to the Antarctic, one hundred leagues distant from any one of the Azores or Cape de Verde islands, and, to the west of it, "conceded and assigned for ever to the kings of Castile and Leon and their successors all the islands and mainlands discovered and which may hereafter be discovered towards the west and south, with all their dominions, cities, castles, places and towns, with all their rights, jurisdictions, and appurtenances," only reserving lands belonging to any other Christian king or prince. The effect on the morals of the world of the stupendous effrontery of this Bull has been far-reaching and merciless; but, at last, it has spent its force against the merciful battalions of heathen Japan. The accurate measurement, on the turbulent waves of the Atlantic, of the 100 leagues mentioned in the Pope's Bull, or of the 370 leagues to which the demarcation was extended by Spain and Portugal in the treaty of Tordesillas (1494), was impossible in those days by any known method. The finding of the longitude of any point on the earth's surface by astronomical observations was unknown. Ships were sailed by dead-reckoning, which was so uncertain that, at the Convention of Badajoz, in 1524, the maps exhibited showed a difference of 46 degrees. By dead-reckoning, the Portuguese carried the demarcation line established in the treaty of Tordesillas sufficiently far west to claim a large area of eastern Canada and nearly two-thirds of South America.

The Manchester Geographical Society commences its new career at an exceedingly interesting period of history. The treaty just signed between England and Japan is the line of demarcation between the new era and the ancient pretensions of the Christian nations to dispose of the bodies, life, and lands of all peoples who do not think as we do. It is the "open door" to respect for the opinions of others as well as for our own. For the first time, the Christian world meets the pagan one on fair ground. It is a grand step forward for humanity, and we may be proud that England has led the van. It presages a vast and harmonious improvement in the intellectual growth and material prosperity of the human race. On the eve of all that it means for commercial development, Manchester should not fail to be among the foremost in the field; and here is where geographical knowledge in its numerous branches becomes of immense value to the manufacturer, the merchant, and the shipper. They should know the geographical and topographical features of every new land which offers opportunity for increased trade, its climatic conditions, population, the customs and tastes of the people, their ability to buy and give exchanges, the facilities for communication and transport, the productiveness and consuming power of various districts, how goods are packed for distribution, and many other items which make for trade and profit. All of these matters are covered by descriptive, physical, and commercial geography, and open proper fields of inquiry for this institution. If Manchester, and its allied towns and cities, will only reflect and recognise this, they cannot fail to give adequate recognition to the value of the labours of the Manchester Geographical Society, and contribute to its healthful existence as the focus of information essential to the well-being and prosperity of this community.

The PRESIDENT OF THE CHAMBER OF COMMERCE (Mr. Harry Nuttall), in moving a vote of thanks to the Lord Mayor, spoke of Geography as the handmaid of Commerce. He said that there ought to be double or treble the present membership of 600 to do the work required efficiently.

The HIGH MASTER OF THE GRAMMAR SCHOOL (Mr. J. Lewis Paton, M.A.), in seconding the vote of thanks to the Lord Mayor, said it was difficult to speak too strongly of "the infamous way in which this subject was handled in the schools most of us attended in the infamous nineteenth century." There were, however, signs of awakening in the schools just now. In the future he believed geography would never have the same "barren, gritty, and offensive odour" it had in the nostrils of the generation to which he was unfortunate enough to belong. He referred particularly to the new circular issued by the Board of Education, which showed that the central authority was alive to the importance of the subject in the schools. It was to be no longer the subject of cram and contempt.

The LORD MAYOR suitably responded.

While this portion of the ceremony was in progress Mr. M. W. Thompstone took a flashlight photograph, of which a reproduction is given as a frontispiece, and thus a notable and important event in the life of the Society is visibly recorded.

After an interval for light refreshments, the programme given below was proceeded with. Unfortunately, the Chairman was too ill to give the

address he had prepared on the history of the Society, his place being taken by Mr. Joel Wainwright and Mr. J. Howard Reed, who spoke in appreciation of the Chairman's long and useful labour for the Society.

PROGRAMME.

6-0 p.m. "Views of Scotch Scenery," etc., shown by the electric lantern presented by Mr. E. W. Mellor, J.P., F.R.G.S.

6-30 p.m. "Music," kindly arranged by Mr. J. Hindle, L.R.A.M.: Trio, "Allegro agitato," op. 49 (Mendelssohn)—piano, Mr. James Hindle; violin, Mr. Frank Haley; 'cello, Mr. Robert Groves. Vocal solo, The Prologue, "Pagliacci" (Leoncavalli), Mr. David Peddie. 'Cello solo, "Romance in D" (Davidoff). Song, "Orpheus with his lute" (Sullivan), Miss Isobel Jardine. Piano and violin duo, "Suite" (Schutte)—(a) "Canzonetta con Variazione," (b) "Scherzo," (c) "Rondo alla Russe." Songs, "Freebooter Songs" (Wallace)—(a) "The Rebel," (b) "Son of Mine"—Mr. David Peddie. Piano solo, (a) "Liebeslied" (Liszt), (b) "Mazurka No. 2" (Godard).

7-30 p.m. "Views of Windsor Castle," etc., shown by the electric lantern presented to the Society.

8-0 p.m. "The History of the Society," by the Chairman of the Council (Rev. S. A. Steinthal, F.R.G.S.).

8-30 p.m. "Music": Piano and 'cello, Introduction and Polonaise (Chopin). Song, "Come, sweet morning" (Old French), Miss Isobel Jardine. Song, "Peace" (Schubert), Mr. David Peddie. Violin solo, "Reverie" (Vieuxtemps). Piano violin, and 'cello, Two Hungarian Dances (Brahms).

PROCEEDINGS OF THE SOCIETY.

JULY 1ST TO DECEMBER 31ST, 1905.

The 701st Ordinary Meeting of the Society was held at the Whitworth Institute on Saturday, July 1st, 1905.

The Curator, Mr. ROBERT BATEMAN, gave an interesting account of the origin and growth of the institute, and then explained the scheme adopted in arranging the collections. Afterwards, in guiding the members through the galleries, he drew attention to various points of interest regarding the works of art exhibited therein.

By permission of the Governors the party assembled in the Council Room to hold the Annual Conference of the Victorians and the delegates from the affiliated societies.

Mr. J. HOWARD REED took the chair at 4 p.m., and Mr. H. C. MARTIN, F.R.G.S., read a paper on "Geography in Schools." (See page 104.) After an adjournment for tea, Mr. WM. HARRIS spoke of "Geography in our Business," and Mr. REED of "Geography in our Pleasures."

An interesting discussion followed, and after the Victorian Lecture arrangements had been mentioned a hearty vote of thanks was passed to the Governors and to Mr. Bateman for their kindness, and to the three speakers for their interesting addresses.

Mr. BATEMAN responded.

The 702nd Meeting of the Society was held at the Peel Park Museum on Saturday, July 29th, 1905.

Mr. BEN. H. MULLEN, M.A., the Curator, kindly acted as guide, briefly describing the history of the Museum, and explaining the scheme for the arrangement of the Geographical Collections. Objects of a like character and use, representing various parts of the world, are grouped together, thus enabling the customs and manners of the different races of people to be compared. Mr. Mullen drew the attention of the members to the most recent additions to the Museum Collections.

The thanks of those present were conveyed to Mr. Mullen, and suitably acknowledged by him.

The 703rd Meeting of the Society was held at Buckley Hall Orphanage on Saturday, September 23rd, 1905.

The members were received by the Brother Superior and other members of the staff, and kindly shown over the Orphanage, full explanations being given by the Superior, by Rev. Father Eyck, and by others.

The various schoolrooms, the workrooms where the boys are taught various trades, such as shoemaking, tailoring, and printing, and the dormitories were examined with interest. The cleanliness, apparent everywhere, and the interest shown by the boys, both in their work and in their play, was noticed with pleasure. The afternoon passed away all too soon, and the members had regretfully to leave after a very welcome refectation had been enjoyed, and the thanks of the members had been given to the staff.

The party then visited the Rochdale Art Gallery to see the St. Louis Collection of British Pictorial Photography, but were rather disappointed with it. They noticed with pleasure a collection of wild flowers, then in flower, in the entrance hall of the building, under the charge of the Rochdale Field Naturalists' Society, who named and exhibited any specimens brought for the purpose.

The 704th Meeting of the Society was held on October 19th, 1905. (See "Proceedings at the opening of the New Premises," page 149.)

The 705th Ordinary Meeting of the Society was held in the New Hall on Tuesday, October 31st, 1905, at 7-30 p.m. In the chair, Mr. E. W. MULLOR, J.P., F.R.G.S.

The Chairman referred to the regrettable illness of the Rev. S. A. Steinthal, F.R.G.S., which was the cause of his absence, and expressed the hope of those present for his early recovery.

The Minutes of the Meetings held on April 18th, May 27th, June 3rd, July 1st, July 29th, September 23rd, and October 19th were approved.

The election of the following new members was announced: Baron de Sousa-Deiro, Dr. F. Cox, Messrs. W. B. Urwin, R. Campbell, J. N. Das, J. Bennett Storey, R. B. Stoker, Wm. Richmond, J.P., W. Johnson Gallo-way, M.P., Abel Heywood, Frederick Heap, John Heys (life), Andrew Jackson, Thomas Dutton, T. Kyle Dawson, and S. W. Royse, J.P., Revs. A. Eustace and R. D. Darby, Alderman T. H. Jenkins, J.P., Alderman J. Griffiths, Alderman Wm. Norquoy, Councillor J. Stephenson, Messrs. B. G. Bellamy, G. H. Warren, and W. Jackson, and the Imperial Library, Calcutta.

Major C. H. D. RYDER, D.S.O., R.E., gave an account of the Tibet Expedition and of his subsequent expedition to Gartok. The lecture was profusely illustrated with lantern slides.

Lieut.-Colonel H. T. CROOK, J.P., moved, Mr. HERMANN WOOLLEY, F.R.G.S., seconded a hearty vote of thanks to Major Ryder for his interesting address, and it was carried unanimously.

Major RYDER responded.

The 706th Ordinary Meeting of the Society was held in the New Hall on Tuesday, November 7th, 1905, at 7-30 p.m. In the chair, Mr. F. ZIMMERN.

The Minutes of the Meeting held on October 31st, 1905, were approved.

Resolutions of sympathy with the relatives of Lady Leech (member of the Council since 1888) and Mr. Herbert Philips (Vice-President) were passed.

Mrs. ARCHIBALD J. LITTLE, the well-known author of "Li Hung Chang: His Life and Times," etc., addressed the members on

**"THROUGH YUNNAN TO TONQUIN: A JOURNEY OF
SURPRISES."**

Mrs. Little said the first few days of the journey after leaving the valley of the Yangtse to climb into the uplands of Yunnan were rendered miserable to her by the anguished faces and bowed figures of the men and boys, not uncommonly bent double by the weight of their burdens and the hardships of the road. She then proceeded to describe the immense traffic in wax insect eggs, a precious cargo carried at an extra rate lest they should germinate before arriving at the special trees in the province of Szechuan, upon which the insect when developed deposits a far thicker coating of white wax than would have been the case had it been left to browse upon the trees of its birthplace in Yunnan. Whilst still occasionally crowded off the road by these insect eggs, her party came across coffins high up in the fact of perpendicular cliffs, graves of the chieftains of some unknown race, about which nothing is known, neither who they were nor why there buried, nor how the heavy coffins were ever deposited in such inaccessible places, and how it happens that they have not long ago rotted away. She then touched lightly upon the subterranean streams perforating the limestone formation, and proceeded to dilate upon the extraordinary abundance of the flowers, hedges red with rambler roses, pink with rambler roses, long sprays of rambler roses dipping into the waterfalls, whilst Reeves pheasants with their inordinately long tails hovered over them. Under the fir woods in almost the highest ground they traversed the party found sweet scented violets growing round the roots of the trees. As a rule in China violets are scentless. Orchids were as plentiful as they were beautiful. Little clouds of birds would often accompany the sedan chairs, singing and calling from time to time, fearless from never being shot at. She then spoke of the ravages of opium and the horrible foot-binding almost universally practised throughout the province; the movement she had started against the custom, the hearty and enthusiastic support afforded by the officials, and the enormous meetings held to protest against the practice. Proceeding from Yunnan City to Tonquin the ravages caused by recent internal wars were painfully evident. A singularly beautiful grotto, for thousands of years the dwelling-place of numbers of swallows, was then described, and then the onward progress of the railway the French have already made from Hanoi to the foot of the Yunnan mountains, and are now bringing up into the Highlands. In July the Haiphong railway reached Laokay, at any rate for construction trains, and was open to that town by September. Burma will almost certainly begin this autumn a 2 feet 6 inches line from Bhamo to Tengyueh, and Mr. Litton (the Consul there) now talks of its eventual extension to Tali as not absolutely impossible. She herself still held by the Lashio-Kunlong route. The Namti valley is the way the French have chosen for the inevitable 6,000 feet rise into Yunnan. So deep and narrow is the defile

that many portions of it the sun never touches. The consequence of this is that the poor railway men die of fever till it is nearly impossible to get coolies to work upon this portion of the line. But in spite of all difficulties the French engineers and Italian entrepreneurs are pushing on so that in another year or two it will be easy to penetrate into the Paradise of the Yunnan Uplands by rail. The redness of the Red River seemed to have greatly struck her. She then described the difficulties of the descent into a valley that, whilst less terrible than the dreaded Namti, is yet so often fatal that none of their servants would go on with them. Out of a party of 26 the previous year 22 never returned. The lecture was freely illustrated with lantern views.

Mr. W. J. ROBERTSON moved, Mr. J. HOWARD REED seconded, and it was resolved, that a cordial vote of thanks be passed to Mrs. Little for her interesting address.

The 707th Meeting of the Society was held on Tuesday, November 14th, 1905, at 7-30 p.m. In the chair, Mr. R. C. PHILLIPS.

The Minutes of the Meeting held on November 7th, were approved.

The death of Mr. Wm. Johnson was mentioned, and a resolution of sympathy with Mrs. Johnson was passed.

The election of Mr. Henry Somerset and Dr. A. C. Magian as Ordinary Members was announced.

The following presentations were referred to: "Industrial History of Mulhouse." The donor, Mr. George Thomas, says: "Mulhouse is really the Manchester not only of Alsace but of the centre of Europe, and the more this work is perused by our Lancashire spinners, weavers, calico printers, etc., the more it will be appreciated." A large number of maps, plans, and books by Mr. Charles Roeder.

The Rev. FRED. A. REES (Rhysfa) gave a lecture, entitled "Up the Mediterranean: Places I have visited and people I have met," illustrated with original lantern slides.

A hearty vote of thanks to Mr. Rees for his interesting address was moved by Mr. C. T. TALLENT-BATEMAN, seconded by Mr. C. E. READE, and unanimously carried.

The 708th Meeting of the Society was held on Tuesday, November 21st, 1905, at 7-30 p.m. In the chair, Mr. F. ZIMMERN.

The Minutes of the Meeting held on November 14th were approved.

Mr. WM. MARRIOTT, F.R.Met.Soc., addressed the members on "Weather Forecasting," illustrating his remarks with a large number of lantern slides. (See page 113.)

Captain W. NELSON GREENWOOD, F.R.Met.Soc., moved, and Mr. W. C. JENKINS (Secretary of the Astronomical Society) seconded, a hearty vote of thanks for the very interesting lecture he had given, and it was passed unanimously.

Mr. MARRIOTT responded.

The 709th Meeting of the Society was held on Tuesday, November 23th, 1905, at 7-30 p.m. In the chair, Mr. HARRY NUTTALL, J.P., F.R.G.S., President of the Chamber of Commerce.

The Minutes of the Meeting held on November 21st were approved.

The election of the following new members was announced:—

ORDINARY: Mr. James Bryant, Mr. Wm. Chapman, Dr. T. Frank Southam, and Mr. S. Britten. ASSOCIATE: Mr. Wallace Laing.

The donation by Mr. George Thomas of a framed tapestry was announced. Mr. Thomas writes: "This tapestry is an imitation of the famous Gobelin tapestries, and has been woven at a Technical Weaving School in a small town in Sweden. It is woven from a picture, one of Professor Sturm's (of Stuttgart) cycle of four paintings, representing Europe, Asia, Africa, and America. This particular tapestry representing Africa by the native water carrier resting on a sphinx."

Mr. J. B. BROWN delivered the first portion of his address on "The growth, importation, manufacture, etc., of Cotton: The staple trade of Lancashire." The address was illustrated with lantern slides.

Mr. H. McNEIL moved, and Mr. R. COBDEN PHILLIPS seconded, a hearty vote of thanks to Mr. Brown for his address, and it was carried unanimously.

The 710th Meeting of the Society was held on Tuesday, December 5th, 1905, at 7-30 p.m. Mr. HARRY NUTTALL, J.P., F.R.G.S., in the chair.

A letter of apology from Mr. Reed and the following letter from Mr. W. C. JENKINS, of the Astronomical Society, were read:—

"DEAR SIR,—Probably you have seen stated by the local press that I am collecting observations relating to the recent earth tremor. Those received up to the present seem to indicate the limitation of the disturbance to the fault area upon which Manchester is situated. The eastern boundary of this area runs through Bradford in North Manchester, and Levenshulme in South Manchester.

"The observations recorded are all situated to the west of this line. I desire some information, either positive or negative, as to whether the tremor was noticed on the eastern side of this fault, so I venture to ask could you at the meeting of your Society inquire of anyone resident in that neighbourhood (1) was a tremor noticed? (2) could they be sure a tremor did not occur? The time was 3-42 a.m. on Saturday morning, November 25th.—I remain, dear sir, yours faithfully,

"WILLIAM C. JENKINS."

Mr. E. W. MELLOR, J.P., F.R.G.S., addressed the Society on "Ceylon, with a retrospective glance." The address was illustrated by original lantern photographs taken during his recent stay in the island, including some taken by the three-colour process.

Sir BOSDIN LEECH, J.P., in moving a vote of thanks to Mr. Mellor for his interesting and instructive address, referred to some of his own experiences in the island. Councillor CHARLES BEHRENS seconded the vote, and it was carried unanimously by the large number present.

Mr. MELLOR responded

The 711th Meeting of the Society was held on Tuesday, December 12th, 1905, at 7-30 p.m. Mr. R. CODDEN PHILLIPS in the chair.

The Minutes of the Meeting held on December 5th were approved.

The election was announced of the following four Ordinary members and one Corresponding member:—

ORDINARY: Mr. Robert Bornmüller, Mr. F. W. Follows, Mr. Richard Güterbock, and Mr. James Robertshaw. CORRESPONDING: Rev. P. A. McDermott.

Mr. J. J. GLEAVE gave an address on "East Anglia: Cromer, the Norfolk Broads and Ely." (See page 116.) The address was illustrated with numerous lantern slides.

Mr. C. A. CLARKE moved, Mr. JOHN B. SMITH seconded, and it was resolved, that the thanks of the meeting be given to Mr. Gleave for his interesting address.

The 712th Meeting of the Society was held on Tuesday, December 19th, 1905, at 7-30 p.m. Mr. J. HOWARD REED in the chair.

The Minutes of the Meeting held on December 12th, 1905, were approved.

Mr. F. LAMBERT described some "Marvels of the Subterranean World—The Jenolan Caves, N.S.W." (See page 128.) Illustrated with 80 views, those of the cave interiors being shown on a patent crystalline screen.

Dr. T. FRANK SOUTHAM moved, Mr. R. GRAHAM BURTON seconded, and it was unanimously resolved, that a hearty vote of thanks be given to Mr. Lambert for his interesting address and slides.

**LIST OF MAPS, BOOKS, JOURNALS, ADDI-
TIONS TO THE MUSEUM, &c.,**

ACQUIRED BY THE SOCIETY FROM JANUARY 1ST TO
DECEMBER 31ST, 1905.

MAPS.

GENERAL.

Maps. Reprints of Maps published in the *Geographical Journal*, 1905.
* The Royal Geographical Society.

EUROPE.

Map of the Roads and Remarkable Places around Buxton. Scale: 2 miles to an inch. Buxton: Wm. Smith, C.E. and Land Surveyor. 1854.
* Mr. C. Roeder.

Lancashire and Cheshire. Reduced from the Ordnance Survey by E. G. W. Hewlett, M.A., and C. E. Kelsey, M.A. Scale, 1/126,720. London: Edward Stanford. 1904. * The Publisher.

Plan of the Parish of Manchester. From a Survey made in the years 1818 and 1819 by Wm. Johnson. Scale, 4 inches to a mile. Manchester: William Johnson. 1820. * Mr. C. Roeder.

Ordnance Survey Plan of Pendleton, 5 feet to one mile. Published 1850. Coloured by W. T. Hansbrow, Land Surveyor, Macclesfield. * Mr. C. Roeder.

Plan of the Town and Port of Liverpool, with Birkenhead and the adjoining Cheshire Coast. By J. Bartholomew, jun., F.R.G.S. Liverpool: George Philip and Son. * Mr. C. Roeder.

Ordnance Survey of Wales. Plan of the Parish of Halkin (Hundred of Coleshill), in the County of Flint. Seven sheets and a Book of Reference. Scale, 1/2500. London. 1871. * Mr. C. Roeder.

Index Map to the Ordnance Survey of Haddingtonshire, on the scale of six inches to one mile. Scale of index: One mile to one inch. * Mr. C. Roeder.

Norway General Kart. Scale, 1/350,000. A4. * Norges Geografiske Opmaalning.

Norway, Amtskarter, 1/200,000. Søndre Trondhjems Amt 111. * Norges Geografiske Opmaalning.

Norway. Topografisk Kart over Kongeriget Norge. Scale, 1/100,000. Sheets 5 D, 32 C, 38 B, H 15, I 11, I 14, I 15, J 12, J 13, K 9, N 9, T 4, U 1, U 2, U 4, U 5, Y 1, Y 2, Z 2, and Æ 2. * Norges Geografiske Opmaalning.

Geologiske Undersøgelse Kart. Scale, 1/100,000. 23 A. * Norges Geografiske Opmaalning.

164 *The Journal of the Manchester Geographical Society.*

- Norway. Special Kart over Nordfjord. Scale, 1/100,000. A 13. *Norges Geografiske Opmaalning.
- Norway. Special Karter over Havne i Finmarken. Scale, 1/50,000. B III., IV., and V. *Norges Geografiske Opmaalning.
- Norway. Special Kart. Gjaeslingerne-Kalvö. Scale, 1/50,000. B 44. *Norges Geografiske Opmaalning.
- Norway. Special Kart. Tjötta-Dönnä. Scale 1/50,000. B 48. *Norges Geografiske Opmaalning.
- Sketch Map of the Belgian Railways, with insets and views of all the principal towns. Bruxelles: Etablissement Geographique. *Mr. C. Roeder.
- Projet d'extension des installations maritimes au Nord d'Anvers. Communiqué à la Chambre de Commerce par M. le Ministre des Finances, *The Right Rev. the Bishop of Salford.
- Map of Spain and Portugal, by E. Mentelle and P. G. Chanlaire. Scale, 17 miles to an inch. London: John Stockdale. 1808. *Mr. C. Roeder.
- Mappa de los Caminos de los Reynos de España y de Portugal. Paris: A. Logerot. 1858. *Mr. C. Roeder.
- Cartagena Harbour. From a Spanish Government Survey, 1881. Scale, 1/12137. London: Published at the Admiralty, 4th October, 1884, under the Superintendence of Captain W. J. L. Wharton. *Mrs. W. T. Arnold.

ASIA.

- A Geological Map of Cyprus, with key. Compiled by C. V. Bellamy, F.G.S. Scale, 1/348,480. London: Edward Stanford. 1905. *The Publisher.
- Map of India. Dedicated to the Directors of the East India Company, by A. Arrowsmith. London. 1816. (Additions to 1820.) In nine sections. Scale: About 14 miles to an inch. *Mr. C. Roeder.
- Map of Tientsin Prefecture and neighbouring country, showing course of Hai Ho-Pei Ho from Ta-Ku Bar to Yang-Ts'un and Yü Ho or Grand Canal. Compiled in the Intelligence Branch, North China Command, under direction of Lt.-Col. A. W. S. Wingate, D.A.Q.M.G., and Lt. F. G. Turner, R.E., July-August, 1903. Sheets 1, 2, 3, and 4. Scale, one inch to one mile. T.S., G.S. No. 1,880. *Director of Military Operations.
- Maps of portions of Manchuria to illustrate the Campaign. Scale, 1/420,000. T.S., G.S. Nos. 1982, 2016, 2019, 2044, 2050. *The Director of Military Operations.
- Map of the country round Vladivostok. Scale, 1/630,000. T.S., G.S. No. 2018. *Director of Military Operations.

AFRICA.

- Africa. Scale, 1/1,000,000. Sheet 7, Tripoli; 8, Ben-Ghazi; 14, Sella; 15, Aujila; 16, Alexandria; 58 and 70, Freetown; 59, Falaba; 71, Monrovia; 73, Kotonu; 74, Cross River; 94 and 95, Kilimanjaro; 107 and 108, Mossamedes; 109, Lialiu; 113 and 114, Kunene River; 119, Wal-fisch Bay; 120, Kalahari; 124, Molopo River. London: T.S., G.S. No. 1539. *The Director of Military Operations.
- Africa. Scale, 1/1,000,000. Part of Sheet 47, Gambia. London: T.S., G.S. No. 1983. *The Director of Military Operations.
- Africa. Scale, 1/1,000,000. Parts of Sheets 58, 59, 70, and 71. Sierra Leone. London: T.S., G.S. No. 2082. *Director of Military Operations.

- Africa. Scale, 1/1,000,000. Parts of Sheets 59 and 71. Liberia. London: T.S., G.S. No. 2083. *Director of Military Operations.
- Africa. Scale, 1/1,000,000. Parts of Sheets 61, 73, and 74. Lagos and Southern Nigeria. London: T.S., G.S. No. 2084. *The Director of Military Operations.
- Africa. Scale, 1/250,000. Nigeria. 50, H, K, L, O, P; 51, I, J, K, L, M, N, O; 52, I, M; 63, E, I; 73, B, C, D, F, G, H, L, P; 74, A, B, C, D, E, F, G, I, J, M, N. London: T.S., G.S. No. 1764. *The Director of Military Operations.
- Africa. Scale, 1/250,000. British Central Africa. Sheet 105, G, Songwe River; 106, K, Nyika Plateau. London: T.S., G.S. No. 1479. *The Director of Military Operations.
- Africa. Scale, 1/250,000. Egyptian Sudan. Sheet 66, M, Hillet Nuer; 78 A, Ghaba Shambe. London: Topographical Section, General Staff. No. 1489. *The Director of Military Operations.
- Sierra Leone Peninsula. Scale, 1/63,360, or 1 inch equals 1 mile. London: T.S., G.S. 1993. *The Director of Military Operations.
- North-east Rhodesia. Scale, 1/2,000,000. London: T.S., G.S. No. 1934. *The Director of Military Operations.
- Portuguese East Africa. Based on "Carta de Mocambique, 1905," with additions and corrections. Scale, 1/3,000,000. London: T.S., G.S. No. 2070. *Director of Military Operations.
- Egypt. Scale, 1/2,000,000. London: T.S., G.S. No. 1792. *Director of Military Operations.
- The Island of Mauritius. In six sheets. Scale, 1/63,360, or 1 inch equals 1 mile. London: T.S., G.S. No. 1874. *The Director of Military Operations.

AMERICA.

- Carte Physique et Politique de l'Amérique Septentrionale et Meridionale. Par A. H. Brue. Scale, 180 miles to an inch. Paris: J. Goujon et J. Andriveau, 1829. *Mr. C. Roeder.
- Topographical Map of the District of Montreal, Lower Canada, by Lieut.-Colonel Joseph Bouchette, Surveyor-General of the Province. Scale, 3 inches to 8 miles. London: James Wyld, 1831. *Mr. C. Roeder.
- Map of the Electoral Divisions in the Provinces of Saskatchewan and Alberta. James White, F.R.G.S., Geographer. Canadian Department of the Interior, 1905 (two copies). *The High Commissioner for Canada.
- Sketch Map of Roads in Trinidad. Scale, about 4½ miles to an inch. *Mr. William Zimmern.

OCEANIA.

- Map of South Australia, as divided into Counties and Hundreds. Compiled from Official Documents in the Office of the Surveyor-General. Melbourne: Hiscocks and Allison, 1855. *Mr. C. Roeder.

ATLASES, ALBUMS, &c.

- An Atlas to Ebel's Traveller's Guide through Switzerland: containing Panoramic Views of the Mountains and a Vocabulary of the Swiss Phrases. London: Samuel Leigh. *Mr. C. Roeder.

The Oxford Atlas of the British Colonies. Part I., British Africa. Oxford: William Stanford and Company Limited.

Album, containing 96 snapshots taken during a visit to America as a Delegate to the Eighth International Geographical Congress, September, 1904, by H. C. Martin, F.R.G.S. *Mr. H. C. Martin, F.R.G.S.

BOOKS.

GENERAL.

Report of the Eighth International Geographic Congress, held in the United States, 1904. Illustrated. Washington: 1905. *United States Government.

The Oxford Geographies, Vol. II. The Junior Geography, by A. J. Herbertson, M.A., Ph.D. Maps. Oxford: Clarendon Press, 1905. *The Publishers.

L'Evolution de la Terre et de L'Homme, par G. Lespagnel. Cartes et Illustrations. Paris: Ch. Delagrave. *The Publisher.

Maritime Discovery and Christian Missions, considered in their Mutual Relations by John Campbell. Illustrated. London: John Snow, 1840. *Mr. C. Roeder.

Industrial Education in Catholic Missions. Reports presented by the Heads of the Various Missions to the Right Rev. the Bishop of Salford. *Right Rev. the Bishop of Salford.

The Traveller's Gazette: An Illustrated Journal devoted to Travel. Vol. LV., Nos. 1-12, 1905. London: Thos. Cook and Son. *The Publishers.

World Travel Gazette. November and December, 1905. Illustrated. Manchester: Dean and Dawson. *The Publishers.

Proceedings of the Royal Geographical Society, 1879-1892 (139 parts, two duplicates). The Geographical Journal, 1893-1904 (154 parts, 32 duplicates). *Mr. A. Montefiore Brice, F.R.G.S.

Stanley le roi des Explorateurs, par Joseph Joubert. Angers: Germain and G. Grassin, 1905. *The Author.

Commercial Intelligence. Nos. 324-375, 1905. London: Henry Sell.

Proceedings at Banquet of the British Cotton Growing Association, held at the Midland Hotel, Manchester, November 12th, 1904, to celebrate the Incorporation of the Association by Royal Charter. *Mr. J. Howard Reed.

The "Daily Mail" Year Book for 1905. Edited by Percy L. Parker. London: Amalgamated Press Ltd. *The Publishers.

The Co-operative Wholesale Societies' Limited Annual for 1905. Illustrated. *Mr. H. C. Pingstone.

Macmillan's Magazine. Volume I., Nos. 1, November; 2, December, 1905. London: Macmillan and Co., 1905. *The Publishers.

Reminiscences, Army Medical Service, by Surgeon-Major W. T. Black, Army Medical Department (Retired). London: John Bale, Sons, and Danielsson, 1905. *Surgeon-Major W. G. Black, F.R.C.S.E.

Souvenirs Entomologiques (Etudes sur l'Instinct et les Mœurs des Insectes), par J. H. Fabre. Neuvième Serie. Avec illustrations. Paris: Ch. Delagrave. *The Publisher.

BRITISH ISLANDS.

- The Naval History of Great Britain, from the year 1783 to 1836, by Captain E. P. Brenton.** In two volumes. Plans and illustrations. London: Henry Colburn. 1837. * Mr. C. Roeder.
- Population of Great Britain, 1831.** Parish Register Abstract, England and Wales. With maps. * Mr. C. Roeder.
- Bushton's Historical Collections.** Part III., Vol. I. From November 3rd, 1640, to August 25th, 1642. * Mr. C. Roeder.
- Maps and Views of Manchester, by C. Roeder.** Plan. Manchester: Richard Gill. 1904. * The Author.
- A Maritim Survey of Ireland and the West of Great Britain.** Taken by order of the Right Hon. the Lords of the Admiralty, by Murdoch Mackenzie, senr., F.R.S. In two volumes. Charts and illustrations. London. 1776. (Two copies of Vol. II.) * Mr. C. Roeder.
- The Agriculture, Commerce, Manufactures, and Fisheries of Scotland, by James Anderson.** Edinburgh: C. Elliot. 1777. * Mr. C. Roeder.

EUROPE.

- Sweden for Peace. The Programme of Sweden in the Union Crisis, by Professor Nils Edén.** Upsala and Stockholm: Almqvist and Wiksell. 1905. * Messrs. Romeike and Curtice.
- The Swedish-Norwegian Union Crisis. A History with Documents, by K. Nordlung, Ph.D.** Upsala and Stockholm: Almqvist and Wiksell. 1905. * Messrs. Romeike and Curtice.
- The Union between Sweden and Norway.** The address presented to the King by the Swedish Parliament. Stockholm: P. A. Norstedt and Söner. 1905. * Messrs. Romeike and Curtice.
- Svenska Turistföreningens Årsskrift för år, 1905.** Illustrationer. Stockholm: Wahlstrom and Widstrand. 1905. * The Swedish Touring Club.
- Travels through the Southern Provinces of the Russian Empire, in the years 1793 and 1794.** Translated from the German of P. S. Pallas. In two volumes. Maps, Plans, and Illustrations. London: A. Strahan. 1802. * Mr. C. Roeder.
- Abbildung des Türkischen Hofes nach den Gemälden von Herr von Ferriol.** Mit 77, Kupfern. Nürnberg: C. Weigel und A. G. Schneider. 1789. * Mr. C. Roeder.
- Constantinople, Ancient and Modern, with Excursions to the Shores and Islands of the Archipelago and to the Troad, by James Dallaway, M.B., F.S.A.** Plan and illustrations. London: T. Cadell, junr., and W. Davies. 1797. * Mr. C. Roeder.
- Greek (Modern), Self-taught. With Phonetic Pronunciation. Containing Archaeology, Photography, Vocabularies, Elementary Grammar, by Nicolas Anastassion.** London: E. Marlborough and Co. 1904. * The Publishers.
- Histoire Documentaire de l'Industrie de Mulhouse et de ses Environs au XIXme Siècle.** Two volumes. Cartes et Illustrations. Mulhouse: Société Industrielle de Mulhouse. 1902. * Mr. George Thomas.
- La Belgique. Institutions Industrie—Commerce, 1830-1905.** Illustrated. Bruxelles: J. Goemaere. 1905. * Monsieur le Ministre de l'Industrie et du Travail.
- Belgian State Railway and Mail Packet Service.** Dover-Ostend, Time Tables and Tourist Programme. January 3rd, May 1st, July 1st, October 1st, 1905. * The Publishers.
- Letters from Cannes and Nice, by Margaret M. Brewster.** Illustrated. Edinburgh: Thomas Constable and Co. 1857. * Mr. C. Roeder.

- A Journey through Spain in the years 1786 and 1787, by the Rev. Joseph Townsend, A.M. In two vols. Third edition. Dublin: James Moore. 1792. * Mr. C. Roeder.
- A Description of the Feroe Islands, by the Rev. G. Landt. Map and Engravings. (Translated from the Danish.) London: Longman, Hurst, Rees, and Orme. 1810. * Mr. C. Roeder.
- * The Oxonian in Iceland, by the Rev. F. Metcalfe, M.A. London: Longman, Green, Longman, and Roberts. 1861. * Mr. C. Roeder.
- * Iceland. Six pamphlets about Iceland, by various Authors. 1847 to 1862. (Bound in one volume.) * Mr. George Thomas.

ASIA.

- Atlas Geographus; or, A compleat System of Geography. Ancient and Modern. Asia. With thirty-one Maps. London: John Nutt. 1712. * Mr. C. Roeder.
- Asiatick Researches; or Transactions of the Society instituted in Bengal for inquiring into the History and Antiquities, the Arts, Sciences, and Literature of Asia. Volume the Fifth. London: T. Maiden. 1801. * Mr. C. Roeder.
- Bengal District Gazetteers (Statistics, 1801-2), Backergunge, Bogra, Chittagong, Chittagong Hill Tracts, Dacca, Dinajpur, Faridpur, Jalpaiguri, Malda, Mymensingh, Noakhali, Pabna, Rajshahi, Rangpur, Tippera. * The Lieutenant-Governor of Bengal, per the Secretary of State for India in Council.
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Cardiff. Naturalists' Society. Report and Transactions. Vol. XXXVII., 1904.

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Edinburgh. Royal Scottish Geographical Society. Magazine. 1905, Vol. XXI., Nos. 1-12 and Index.

Glasgow. Geological Society. (Nothing received.)

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Leeds. Yorkshire Geological Society. Proceedings. Vol. XV., Part 3.

Leeds. Yorkshire Naturalists' Union. (Nothing received.)

Leicester. Literary and Philosophical Society. Transactions. Vol. IX., Parts 1-2.

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- London. Review of Reviews. 1905, Nos. 181-192.
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- Manchester. Literary and Philosophical Society. Memoirs and Proceedings. Vol. 49, Parts I., II., and III.
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- Manchester. Textile Recorder. 1905, Nos. 261-272.
- Newcastle-on-Tyne. Tyneside Geographical Society. (Nothing received.)
- Newcastle-on-Tyne. North of England Institute of Mining and Mechanical Engineers. Transactions. Vols. LII., No. 8; LIII., 5; LIV., 8; LV., 1-4. Report of the Committee upon Mechanical Coal Cutting. Part II., Heading Machines. Annual Report for 1904-5.
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- Penzance. Royal Geological Society of Cornwall. (Nothing received.)
- Plymouth. Plymouth Institution and Devon and Cornwall Natural History Society. (Nothing received.)
- Rochdale. Literary and Scientific Society. Transactions. 1903-1905, Vol. VIII.

- St. Leonards-on-Sea.** Highbury House School. *The Thistle*. 1904, Vol. XXIX., Nos. 2, 6; 1905, XXX., 1-6.
- Salford.** Museum, Libraries, and Parks Committee. *Fifty-seventh Annual Report*, 1904-5.
- Southampton.** Geographical Society. (Nothing received.)
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- London.** British and Foreign Bible Society. 100th Report, 1904. 101st Report, 1905. "Seed Corn for the World." A Popular Report of the British and Foreign Bible Society for the year 1904-5.
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- London.** Colonial and Continental Church Society. *Greater Britain Messenger*. 1905, January to December.
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- London.** *Illustrated Catholic Missions*. 1905, January to December.
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- London.** United Methodist Free Church. *Missionary Echo*. 1905, January to December.
- Mangalore.** Basel German Evangelical Mission in South-Western India. *65th Annual Report for the year 1904*.

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- Brisbane.** Royal Geographical Society of Australasia, Queensland Branch. *Proceedings*. 1904-5, Vol. XX.
- Brisbane.** Queensland Museum. *Annals*, No. 6.
- Brisbane.** Department of Mines. Geological Survey of Queensland. *Publications*. Nos. 190-200.
- Bulawayo.** Rhodesia Scientific Association. *Annual Report for the year ending 31st May, 1905*. *Proceedings*. 1903-4, Vol. IV.; 1905, Vol. V., No. 1.
- Cape Town.** South African Philosophical Society. *Transactions*. Vol. XV., Parts 4, 5; XVI., 1, 2.
- Halifax.** Nova Scotian Institute of Science. *Proceedings and Transactions*. 1902-3, Vol. XI., Part 1.
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- Toronto. Canadian Institute. Transactions. No. 16, Vol. VIII., Part 1, September, 1905.
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- Bremen. Deutsche Geographische Gesellschaft. Blätter. Band XXVIII., Heft 1-4.
- Brest. Société Académique de Brest Section de Géographie. (Nothing received.)
- Brussels. L'Etat Indépendent du Congo. Bulletin Officiel. 1905, January to December,

- Brussels. Société Royale Belge de Géographie. Bulletin. 1905, Vol. XXIX., Nos. 1-6.
- Brussels. Le Mouvement Géographique. 1905, Nos. 1-53.
- Brussels. La Belgique Coloniale. 1905, Nos. 1-26.
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- Buenos Aires. Instituto Geografico Argentino. Boletin. Tomo XXII., Nos. 7 to 12.
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- Buenos Aires. Museo Nacional de Buenos Aires. Anales, Series III., Tomos IV., V.
- Buenos Aires. Ville de Buenos Aires. Annuaire Statistique. 1904, XIVme Année.
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- Cambridge. Peabody Museum of American Archaeology and Ethnology. Harvard University. Papers. Vol. III., No. 3.
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- Darmstadt. Verein für Erdkunde. Notizblatt. Folge IV., Heft 25.
- Dijon. Société Bourguignonne de Géographie et d'Histoire. Mémoires. (Nothing received.)
- Douai. Union Géographique du Nord de la France. Bulletin. Tome XXVI., Nos. 1, 2.
- Dresden. Verein für Erdkunde. Mitteilungen. Heft 1, 2. Bucherei-Verzeichnis, 1905. Muschelgeld-Studien von Prof. Dr. Oskar Schneider.
- Dunkerque. Société de Géographie. Bulletin. 1905, Nos. 27-29.
- Firenze (Florence). Rivista Geografica Italiana. Annata XII., Fascicolo 1-10.
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- Frankfurt. Verein für Geographie und Statistik. Jahresbericht. 68 und 69 Jahrgang; 1903-1904 und 1904-1905.

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- Geneva. Société des Anciens Elèves de l'Ecole Supérieure. Bulletin. Nos. 66, 68, 69, 70.
- Giessen. Geographische Mitteilungen aus Hessen. (Nothing received.)
- Griefswald. Geographische Gesellschaft zu Griefswald. IX. Jahresbericht. 1903-1905
- Halle. Verein für Erdkunde. Mitteilungen. 1905.
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- Hamburg. Geographische Gesellschaft. (Nothing received.)
- Hamburg. Horizontalpendel Station. Dr. R. Schütt. Mittheilungen. 1905, Nos. 1, 2.
- Hannover. Geographische Gesellschaft. Jahresbericht, 1898-1905.
- Havre. Société de Géographie Commerciale. Bulletin. Vol. XXII., No. 1.
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- Helsingfors. Société de Géographie de Finlande. (Nothing received.)
- Helsingfors. Meddelanden af Geografiska Föreningen. (Nothing received.)
- Hermannstadt. Siebenbürgische (Transylvanian) Karpathenverein. (Nothing received.)
- Irkutsk. Imperial Russian Geographical Society, East Siberian Section. (Nothing received.)
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- Kazan. Naturalists' Society of the Imperial University. Journal. Vol. XXXIX., Nos. 4-6.
- Königsberg. Geographische Gesellschaft. (Nothing received.)
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- La Paz. Oficina Nacional de Inmigracion, Estadistica y Propaganda Geografica. Boletin. Vol. IV., Nos. 43, 44, 45. Revista del Ministerio de Colonias y Agricultura. Vol. I., Nos. 1, 2, 3. Geografia de la Republica de Bolivia.
- La Plata. Direccion General de Estadistica de la Provincia de Buenos Aires. Boletin Mensual. 1905, Nos. 54, 56, 57, 58, 60.
- La Plata. Museo de la Plata. (Nothing received.)
- La Plata. Publicaciones de la Universidad de la Plata. No. 2, October, 1904. Paleontologia Argentina, por el Profesor Dr. Florentino Ameghino. Proyecto de una Estacion de Segunda Clase, por A. F. Glade. Proyecto de Puente de Mamposteria, por C. Gonzalez. Proyecto de Edificio para Facultad de Ingenieria, por A. P. Miguez.
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- Lisbon.** Sociedade de Geographia de Lisboa. Boletim. Vol. XXIII., Nos. 1-12.
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- Madison.** Wisconsin Geological and Natural History Survey. Bulletin. (Nothing received.)
- Madrid.** Sociedad Geografica. Boletin. Vol. XLVII., Nos. 1-4. Revista. Vol. III., Nos. 1-9.
- Madrid.** Ayuntamiento de Madrid. Estadística Demografica. 1904, Summary; 1905, January to December. Boletin. Nos. 418-469.
- Marseille.** Société de Géographie. Bulletin. Vol. XXVIII., No. 4; XXIX., 1.
- Metz.** Verein für Erdkunde. (Nothing received.)
- Mexico.** Sociedad Científica "Antonio Alzate." Memorias y Revista. Vol. XIII., Nos. 9, 10; XXI., Nos. 1-12; XXII., 1-6.
- Milan.** L'Esplorazione Commerciale. Vol. XX., Nos. 2-15, 18-24.
- Missoula (Montana).** University of Montana. University Bulletin. Nos. 25, 26, 28, 29, 30, 31.
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- Nancy.** Société de Géographie de l'Est. Bulletin. Vol. XXVI., Nos. 1-3.
- Nantes.** Société de Géographie. Bulletin. (Nothing received.)
- Naples.** Società Africana d'Italia. Bollettino. Vol. XXIV., Nos. 1-12.
- Neuchatel.** Société Neuchateloise de Géographie. Bulletin. Tome XVI., 1905.
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- Odessa.** Club Alpin de Crimée. Bulletin. 1905, Nos. 1-12.

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- Omsk. Imperial Russian Geographical Society. West Siberian Branch. (Nothing received.)
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- Parà (Brazil). Museo Paraense de Historia Natural e Ethnographia. Memorias. IV. Os Mosquitos no Para.
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- Paris. Société de Spéléologie. Spelunca. Tome V., No. 40; VI., 41-43.
- Paris. Société de Topographie. Bulletin. Vol. XXIX., Nos. 1-9.
- Paris. Comité de l'Afrique Française. Bulletin. 1905, Nos. 2-12. Les Renseignements Coloniaux. Nos. 2-12.
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- Philadelphia. American Philosophical Society. Proceedings. Vol. XLIV., Nos. 179-181.
- Philadelphia. Commercial Museum. (Nothing received.)
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- Philadelphia. The Department of Archaeology, Free Museum of Science and Art, University of Pennsylvania. Transactions. Vol. I., Part 3.
- Prague. Société de Géographie tchèque à Prague. Revue. 1903, Vol. IX.
- Rocheport. Société de Géographie. Bulletin. Vol. XXVII., Nos. 1, 2.
- Rolla, Mo. Missouri Bureau of Geology and Mines. Vol. XIII., "Structural and Economic Geology." Second Series. Vol. I., "The Geology of Miller County." Vol. II., "The Quarrying Industry of Missouri." Biennial Reports to the 42nd and 43rd General Assemblies.
- Roma. Società Geografica Italiana. Bollettino. Vol. VI., Nos. 1-12.

Presented by Signor LUIGI BODIO.

- Rome. Institute Internationale de Statistique. Bulletin. Vol. XV., Part 1.
- Rome. Bollettino del' Emigrazione. Anno 1905, Nos. 1-22.
- Rome. Statistica Industriale. Riassunto delle Notizie sulle Condizioni Industriali del Regno. Parte 2.
- Rome. Emigrazione e Colonie. Vol. I. Europa, Parte 3.
- Rome. Movimento della Popolazione Secondo Gli Atti dello Stato Civile nell' Anno 1903.
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- Rome. "Cosmos." Edited by Prof. Guido Cora. Vol. XIII., No. 3.
- Rouen. Société Normande de Géographie. Bulletin. 1905, January to September.
- San Francisco. Southern Pacific Railway. Sunset. Vol. XIV., Nos. 3-5; XV., 1-6; XVI., 1, 2.

- San Francisco. Geographical Society of the Pacific. Bulletin. Series II., Vol. IV.
- San Francisco. Geographical Society of California. (Nothing received.)
- San José. Instituto Fisco-Geografico de Costa Rica. Anales. 1896, Tomo IX.
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- Shanghai. Imperial Maritime Customs, China. I., Statistical Series; No. 2, Customs Gazette, Nos. 145-148, Nos. 3 and 4, Part 1, Returns of Trade and Trade Reports for 1904; Part 2, Reports and Statistics for each port for 1904, Vols. I., II.; No. 7, Native Customs Trade Returns, Nos. 1, 2. III., Miscellaneous Series: No. 29 (see list of Books—China).
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- Toulouse. Société de Géographie. Bulletin. 1905, Nos. 1, 2.
- Tours. Société de Géographie. Revue. Vol. XXII., Nos. 1-4.
- Upsala. Geological Institution of the University of Upsala. Meddelanden. Nos. 27, 28. Results of the Swedish Zoological Expedition to Egypt and the White Nile, 1901, under the direction of L. A. Jägerskiöld. Part II.
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- Washington. United States Geological Survey. C. D. Walcott, Director. 25th Annual Report, 1903-4. Mineral Resources of the United States, 1903

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- Washington. United States Geological Survey. Monographs. Vols. XLVII.; XLVIII., Parts 1, 2.
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- Washington. United States Geological Survey. Professional Papers. Nos. 29-42. (See list of Books.)
- Washington. United States Geological Survey. Water Supply and Irrigation Papers. No. 105, The Water Powers of Texas. Illustrated. No. 106, Water Resources of the Philadelphia District. Map and Diagrams. No. 107, Water Powers of Alabama, with an Appendix on Stream Measurements in Mississippi. Maps and Illustrations. No. 108, Quality of Water in the Susquehanna River Drainage Basin. Illustrated. No. 109, Hydrography of the Susquehanna River Drainage Basin. Maps and Illustrations. No. 110, Contributions to the Hydrology of Eastern United States, 1904. Maps and Illustrations. No. 111, Preliminary Report on the Underground Waters of Washington. Map. No. 112, Underflow Tests in the Drainage Basin of Los Angeles River. Map and Illustrations. No. 113, The Disposal of Strawboard and Oil Well Wastes. Map and Illustrations. No. 114, Underground Waters of Eastern United States. Maps and Illustrations. No. 115, River Surveys and Profiles made during 1903. Maps and Illustrations. No. 116, Water Problems of Santa Barbara, California. Maps and Illustrations. No. 117, The Lignite of North Dakota and its Relation to Irrigation. Maps and Illustrations. No. 118, Geology and Water Resources of a Portion of East-Central Washington. Maps and Illustrations. No. 119, Index to Hydrographic Progress Reports, 1904. No. 120, Bibliographic Review and Index of Papers Relating to Underground Waters. Published, 1879-1904. No. 121, Preliminary Report on the Pollution of Lake Champlain. Map and Illustrations. No. 122, Relation of the Law to Underground Waters. No. 123, Geology and Underground Water Conditions of the Jornada del Muerto, New Mexico. Map and Illustrations. Nos. 124-135, Report of Progress of Stream Measurements for 1904. Parts I-XII. No. 136, Underground Waters of Salt River Valley, Arizona. Map and Illustrations. No. 137, Development of Underground Waters in the Eastern Coastal Plain Region of Southern California. Maps and Illustrations. No. 138, Development of Underground Waters in the Central Coastal Plain Region of Southern California. Maps and Illustrations. No. 139, Development of Underground Waters in the Western Coastal Plain Region of Southern California. Maps and Illustrations. No. 140, Field Measurements of the Rate of Movement of Underground Waters. Illustrated. No. 141, Observations on the Ground Waters of Rio Grande Valley. Maps and Illustrations. No. 142, The Hydrology of San Bernardino Valley, California. Maps and Illustrations. No. 143, Experiments of Steel Concrete Pipes on a Working Scale. Illustrated. No. 144, The Normal Distribution of Chlorine in the Natural Waters of New York and New England. Maps. No. 145, Contributions to the Hydrology of Eastern United States. Maps and Illustrations. No. 146, Proceedings of Second Conference of Engineers of the Reclamation Service. No. 147, Destructive Floods in the United States in 1904. Illustrated. No. 149, Preliminary List of Deep Borings in the United States. (Second Edition, with additions.) No. 151, Field Assay of Water. Illustrated. No. 152, A Review of the Laws Forbidding Pollution of Inland Waters in the United States. (Second Edition.)
- Washington. Smithsonian Institution. Reprints from the Report for 1903: No. 1510, Terrestrial Magnetism in its Relation to Geography. No. 1511, An Exploration to Mount McKinley, America's Highest Mountain. No. 1512, North Polar Exploration: Field Work of the Peary Arctic Club, 1898-1902. No. 1513, The First Year's Work of the National Antarctic Expedition. No. 1514, The Swedish Antarctic Expedition. No. 1534, Lhasa and Central Tibet. No. 1535, A Journey

of Geographical and Archæological Exploration in Chinese Turkestan. No. 1536, From the Somali Coast through Ethiopia to the Sudan. No. 1539, The Republic of Panama. No. 1540, The Reclamation of the West. Reprints from the Report for 1904. No. 1615, On Mountains and Mankind. No. 1616, Morocco. No. 1639, An Inquiry into the Population of China. No. 1643, The Economic Conquest of Africa by the Railroads. No. 1644, The Present Aspects of the Panama Canal. No. 1646, The Projected New Barge Canal of the State of New York.

Washington. United States National Museum. Report for the year ending June 30th, 1903.

Washington. United States Department of Agriculture. Weather Bureau. Report of the Chief for 1903-1904.

Washington. United States Department of Agriculture. Weather Bureau. Monthly Weather Review. Vol. XXX., Nos. 1-12.

Washington. United States War Department. Military Information Division. (Nothing received.)

THE MUSEUM.

ACCESSIONS.

Cupriferous Conglomerate from Engine Vein, Alderley Edge. Specimen from the pre-historic mining site at that place, worked in shallow pits and terraces by the Roman explorers. * Mr. Charles Roeder.

Cup, taken in 1876, with a quantity of other Nankin China, from the wreck of the "Gotheborg," a sailing vessel wrecked near Elfsborg, near Gothenburg, in the year 1745, on her homeward passage from the East Indies and China. * Mr. George Thomas.

Large Tapestry, representing Africa; native water carrier resting on a Sphinx. Woven at a Swedish Technical School from a picture by Professor Stürm, of Stuttgart. (Imitation of the Gobelin Tapestries.) * Mr. George Thomas.

LIST OF MEMBERS.

December 31st, 1905.

Note.—H signifies Honorary, C—Corresponding, L—Life, A—Associate, * Affiliated Societies. All others are Ordinary Members.

Abbott, James H.
Adam, Sir Frank Forbes, C.I.E.
L Ainsworth, John, C.M.G. (Nairobi)
Alexander, Bernard
Alexander, W. T.
H Agyll, His Grace the Duke of, K.T.
Armistead, Richard
Armitage, Samuel
Armstrong, F.
Arning, A. W.
Arnold, W. A.
Ascoli, E.
Ashworth, Francis, J.P.
Ashworth, Wm., F.C.A.
Atkinson, Thos.

Balfour, The Right Hon. A. J., M.P.
Balmer, J. E., F.R.G.S.
Barclay, R., J.P.
Bardley, G. W.
Barlow, John R., J.P.
Barningham, James
Barningham, Thomas
Baronian, Z. S. Ipliejiau
A Batho, Thomas
A Baxandall, Miss C.
A Bayley, Mrs. C. H.
Beer, Walter
Behrens, Councillor Charles
Behrens, Lt.-Col. E.A., V.D.
Behrens, Gustav, J.P.
Behrens, Oliver P.
H Belgians, His Majesty the King of the, K.G.
A Belisha, B. I.
O Bellamy, C. H., F.R.G.S., Tourcoing
A Bellamy, Basil G.
Bennet, Andrew
Bentley, John Howard, F.R.G.S.
Benton, John
Berry, Harold
Berry, Councillor J., Swinton
Berry, R. H.
A Bickerton, Richard
Black, Surgeon-Major W. G., F.R.C.S.E.
Blake, George Ingle
Blake, John Charles, F.R.G.S.
A Blanchoud, Mdle.
A Bleloch, W.
Bles, A. J. S.
Bles, Marcus S., J.P.
L Boddington, Henry, J.P.
Boden, Joseph
O Bodio, Professor Luigi, Rome
H Bonaparte, S. A. Prince Roland, Paris

Bornmüller, Rudolph
A Bosworth, George R.
Bowie, George T.
Bradley, N., J.P.
Bradshaw, Wm.
Bramwell, Samuel
C Brice, A. Montefiore, F.R.G.S.
Bridge, Alfred
Brier, Charles
Brigge, Herbert
Britten, S.
Broadhurst, E. Tootal, J.P.
Brooks, J. B. Close
L Brooks, Mrs. S. H.
L Brooks, S. H., J.P., F.R.G.S.
Broome, Henry
Broome, Joseph, J.P.
C Brower, Hon. J. V., St. Paul, Minn., U.S.A.
Brownrigg, W. F.
Brown, R. Hope, Bolton
Brumm, Charles
Bryant, James
C Bryce, J. Annan
Buckley, W. H., J.P.
Burgon, Councillor Anthony
* Burnley Literary and Scientific Club
L Burton, Frederic
A Burton, R. Graham
Butterworth, Councillor Walter
Bythell, J. K., J.P.

Calcutta, Imperial Library
A Caldwell, Wm.
Calvert, D. R.
Campbell, Richardson
A Cardwell, J. J.
L Carver, W. Oswald
* Chadderton Education Committee
Chapman, Wm.
Cheetham, J. F., M.P.
Child, J.
Chorlton, Isaac
Chorlton, James
Chorlton, J. C., J.P.
Churchill, Wm. W., junr.
Clapham, G. H.
Clapham, Col. W. W.
A Clarke, Charles A.
C Clerke, Miss E. M., London
Cocks, John
A Cohen, Meyer
C Colbeck, Rev. A.
L Colley, T. H. Davies
Collier, Edward

▲Collinge, Miss A.
 Collmann, C., Consul for the German Empire
 cColquhoun, A. R., F.R.G.S., M.I.C.E.
 Congo State, M. le Secrétaire General,
 Département de l'Intérieur
 cConingham, Captain H. J., F.R.G.S.
 Cook, George T.
 iCooper, Mrs. A. H.
 Core, Professor T. H., M.A.
 Cowan, E. W., C.E.
 Cowburn, W. H.
 Cox, Dr. Frederic.
 Cox, J. J., M.D.
 Crewdson, Alfred
 Crompton, Thos. A.
 Crook, Lieut.-Col. H. T., J.P., C.E.
 Crossley, W. J., J.P.
 Crowther, Miss E., Altrincham

 Dann, E. W., B.A., F.R.G.S.
 Darby, Rev. R. D.
 ▲Davies, Charles. J.
 Dawkins, Prof. W. Boyd, J.P., M.A.,
 F.R.S.
 ▲Dawson, Charles
 Dawson, T. Kyle
 Deakin, Edward, jun.
 ▲Deakin, G. G. D.
 Deakin, Thos. S.
 Dean, Councillor J.
 Dennis, Cammack
 Dentith, Mrs. T., Dobcross
 Derby, The Rt. Hon. the Earl of, K.G.
 Devonshire, His Grace the Duke of, K.G.
 Donnell, Joseph
 Donner, Edward
 ▲Dowdall, J. B.
 LDozey, Alex.
 Duckworth, Charles
 Duckworth, Alderman James, J.P.
 Dutton, Thomas

 Eason, Edward A.
 *Eccles Prov. Ind. Co-op. Soc., Ltd.
 Eckersley, William
 Egerton of Tatton, The Right Hon. the,
 Earl
 ▲Ely, J. M.
 England, A.
 LErmen, Charles
 Eustace, Rev. Alfred, M.A.
 Evans, E. Russell

 Farmer, R. J.
 *Farnworth-with-Kearsley P.C.M.I. Sy.
 cFedotoff, A., Moscow
 Ferguson, Wm.
 Fern, George
 cFief, J. du, Royal Belgian Geographical
 Society
 Finnigan, Wm., junr.
 cFisher, Rev. A. B., F.R.G.S.
 Fletcher, Alfred James

Fletcher, R.
 Follows, F. W.
 Fooks, C. F.
 Frank, Ernest
 Frankenburg, Alderman I. (His Worship
 the Mayor of Salford)
 ▲Freeman, W. C.
 hFreshfield, Douglas W., F.R.G.S.

 Gadd, The Rt. Rev. Monsignor Canon,
 V.G.
 Gaddum, G. H., J.P.
 Galloway, George, J.P.
 Galloway, W. Johnson, M.P.
 ▲Garner, Charles T. I.
 Garnett, Jeremiah, J.P.
 Garnett, Stewart, J.P.
 Geiler, H.
 Gibson, Alderman R., J.P.
 Gleave, Joseph James
 Glossop, J. P. B.
 Godbert, Chas. W.
 Godlee, Francis
 Goetz, Edward
 hGoldamid, Major-General Sir Frederic J.
 C.B., F.R.G.S.
 Goodbehere, Frederick
 Goodwin, Alfred
 Gordon, T. Hoagetta, B.A.
 ▲Greenough, Richard, Leigh
 ▲Greenwood, Alderman Jas., J.P.
 ▲Greenwood, W. Nelson, F.R. Met. Soc.,
 Glasson Dock
 Greg, Ernest W., J.P., C.C., F.R.G.S.
 Gregory, Theodore, F.C.A.
 Griffiths, Alderman John
 Griffiths, J. W.
 LGroves, J. G., M.P.
 LGroves, W. G., J.P.
 Gudgeon, Robert
 Gunson, W. Telford, C.E.
 Güterbock, Richard

 Hacking, Nicholas H., J.P.
 Hadfield, George, J.P.
 Hadfield, George
 Hadfield, W. J.
 Hailwood, Councillor Anthony
 Hall, James, J.P.
 iHall, J. Howard, Bury
 cHallett, Holt S., M.I.C.E., F.R.G.S.
 Hallman, E. H.
 Hallworth, Joseph
 Hamp, E. H.
 cHanlon, Rt. Rev. Henry, Bishop of Teos,
 and Vicar Apostolic of the Upper
 Nile
 Hardcastle, G. L.
 Hardman, John, Radcliffe
 Hargreaves, George
 ▲Harker, George
 ▲Harper, William
 Harris, Mrs. Isabella M.
 Harris, Thomas

- Harrison, J. Dilworth
 Harrop, G. A.
 Hassall, Councillor Thomas, J.P.
 Hatch, E. F. G., M.P.
 Hawkins, William
 Haworth, G. C., J.P.
 Haworth, J. F., J.P.
 Haworth, Thos.
 Haworth, W., J.P., Accrington
 Haze, Geo. A.
 Healey, Councillor D.
 LHealey, Councillor W., J.P.,
 Heap, Frederick
 Heap, Alderman, W. T. J.P., Rochdale
 Helm, S. L.
 Henriques, D. Q.
 Hepplestone, Thos. W.
 Hepworth, R. A.
 AHepworth, Mrs. R. A.
 cHerbertson, A. J., M.A., Ph.D., Oxford
 Herford, Miss C.
 Hesketh, W. R.
 AHewit, R. P.
 LHeys, John
 Heywood, Abel
 Hicks, George
 Hiersemann, K. W., Leipzig
 Higham, J. Sharp, M.P.
 *Highbury House School, St. Leonards-on-Sea
 Hilton, Fred
 Hilton, John S.
 Hindle, James, L.R.A.M.
 Hinrichsen, S.
 Hodgson, William, Heaton Moor
 AHolden, Henry
 Holland, Sir W. H., M.P.
 AHollingworth, Edgar
 Hopkinson, A., Q.C. (The Vice-Chancellor of Victoria University)
 Hopkinson, Edward, D.Sc.
 Horsfall, T. C., J.P.
 Houghton, John
 Houldsworth, Sir W. H., Bart., M.P.
 Hoy, Alderman Sir Jas., J.P.
 Hoyle, E.
 Hoyle, W. E., M.A.
 Hoyten, Wm. J., M.R.C.S., F.R.G.S.
 Hughes, Joseph David
 Hulton, Edward
 LHutton, J. Arthur
 Hutton, R. W.
 Illingworth, Charles
 Ingram, Matthew
 Jackson, Andrew
 Jackson, F. E.
 Jackson, Fred J.
 AJackson, William
 Janus, H.
 Jenkins, Alderman T. H., J.P.
 Johnson, E.
 Johnson, Lionel M.
 cJohnston, Sir H. H., F.R.G.S.
 Johnstone, Charles Andrew
 Jones, Wm., J.P.
 Joynson, R. H., J.P.
 Jucker, J.
 Kalisch, M.
 AKay, Miss Katie
 cKeiffer, F., Moscow
 Kennedy, A. J., F.R.G.S.
 Kershaw, B.
 Kessler, Henry
 Kessler, William
 Keymer, Sidney L., F.R.G.S.
 Kinch, W. S.
 Kinder, Ashton.
 Kingston, A.
 Kirkpatrick, Henry, J.P.
 Kolligs, F. H., Consul for Ecuador
 Kolp, N.
 Kullmann, Julius
 ALafond, E. E.
 Laidlaw, Adam
 ALaing, Wallace
 ALancaster, James
 Langley, H. M., Consul for Honduras and Salvador
 Lanyon, James, J.P.
 Laverton, Walter
 ALaw, Miss Annie E., L.L.A.
 ALaw, T. H.
 Lawson, R. G.
 Lea, Dr. Arnold W. W.
 ALedward, H. Davenport
 Leech, Alderman Sir Bosdin T., J.P.
 ALeech, Miss
 cLeech, Wm. Booth
 ALeeaman, E.
 Lees, Walter
 Leigh, James
 Leigh, John
 Leigh, Sir Joseph, M.P.
 *Leigh Literary Society
 Lemos, Professor Angel Ma Diaz
 Lewis, J. Tetlow, J.P.
 Little, David Ainsworth
 Logan, John
 Lomas, J. A.
 Lord, Charles
 Lord, W. C.
 Luke, Robert
 McAdam, John
 Macara, C. W., J.P.
 McDermott, Rev. P. A., C.S.Sp.
 HMacdonald, Lieut-Col. Sir J.R.L., R.E.
 McDougall, Alderman A., J.P.
 McDougall, I. S.
 McFarlane, H. H.
 McFarlane, James
 McFarlane, John, M.A., Victoria University
 HMcFarlane, Rev. S., LL.D.

- HMacGregor, H. E. Sir Wm., M.D.,
 K.C.M.G.
 McNicol, A.
 Magian, Anthony C., M.D., F.R.G.S.
 Maginnis, R.
 Magson, John
 Makin, E., junr.
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 Mazzebach, C.
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 Morris, John Alfred
 Moxon, Thomas Bouchier
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 LNeil, Alexander
 Neild, Jesse
 Neill, Robert, J.P.
 ANewbigging, Thos., C.E.
 ANightingale, W. H.
 Noar, H.
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 LPilkington, Edward, J.P.
 Pilkington, Lawrence
 cPingstone, G. A.
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 APidd, Mrs. Eli
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 LPorter, Rev. Canon W. C., M.A., East
 Africa

 ARadcliffe, F.
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^LSmallman, F., F.R.G.S.
^LSmith, Rev. Canon F. C., M.A., F.R.G.S.
 Smith, J. H. H., J.P.
 Smith, John R.
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^ASouthward, Henry
 Southam, Dr. T. Frank
^ASowerbutta, Harry, A.R.C.Sc.
 Sowerbutta, T. W.
 Sowler, Harry, J.P.
 Speakman, Walter
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 Spurr, H. R.
 Stadelbauer, H.
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 Steinthal, Egbert
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^AStewart, Robert
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 Stonehewer, Walter
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 Storey, J. Bennett
 Stott, C. H.
^AStott, Miss Gladys
 Stromeyer, C. E.
 Summerskill, H. H.
 Susmann, E.
^HSwallow, Rev. R., M.D.
 Swallow, R. W., B.Sc., Tai Yuan-fu
^LSykes, Arthur H., D.L., J.P.
 Symonds, The Rev. Canon

 Tatham, Leonard
^ATatton, Lees W.
^ATaylor, Albert
 Taylor, Frederick
 Taylor, William
 Terry, Henry
 Thewlis, Councillor J. Herbert (The Rt. Hon. the Lord Mayor of Manchester)
^LThomas, George
 Thompson, J. A.
 Thompson, W. G.
 Thompstone, Mark W.

^CThomson, J.P., F.R.S.G.S., Brisbane
 Thomson, R.
 Thorp, Henry
^LTrafford, Sir Humphrey F. de, Bart.
 Tulloch, Angus
^ATurnbull, Alderman Thomas
 Turner, James
 Turner, William

 Urwin, W. B.

 Vasquez B., Senor D. Miguel, Medellin
 Vaudrey, Alderman, Sir W. H., J.P.
^AVeevers, Harrison, A.M.Inst. C.E.

 Waddington, W. Angelo
^HWainwright, Joel, J.P.
 Wainwright, Thomas Foster
 Walkden, John, C. C.
^AWalkden Co-operative Society Limited
 Walker, George
 Walker, John Hy.
 Wallace, Miss M. W.
 Wallwork, Roughsedge
^HWard, A. W., M.A., Litt.D.
^AWarren, Geo. H.
 Waterhouse, I. C.
 Watkin, Edward
^AWatkinson, J. W.
^AWatson, Colonel C. M., R.E.
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 Webster, John
 Welsh, W.
 Welter, H. (Bibliothèque Nationale, Section des Cartes, Paris).
 Whipp, Robert
^LWhittaker, Mrs. A. H.
 Wilde, James D., M.A.
 Wilkinson, Wm
 Willcocks, Brigadier General Sir James, K.C.M.G., D.S.O.
 Williamson, R. T., M.D., F.R.G.S.
 Williamson, Wm. Henry
 Wilson, Wm., J.P.
^AWinstanley, T. G.
 Wood, George Hervey
^LWood, George W. Rayner, J.P.
 Wood, W.
 Woodhead, Timothy
 Woodhouse, S. T.
 Woolfenden, Joseph, jun.
 Woolley, George Stephen
 Woolley, Hermann, F.R.G.S.
^AWoolston, Miss M.
 Worthington, S. Barton
^LWrathmell, T.

 Yates, J., M.D., J.P.
 Young, G. H.

 Zimmeru, Fritz

THE
MANCHESTER GEOGRAPHICAL SOCIETY.

RULES.

I. OBJECT AND WORK.

The object of the Manchester Geographical Society is to promote the study of all branches of Geographical Science, especially in its relation to commerce and civilisation.

The work of the Society shall be:—

1. To further in every way the pursuit of the science; as, by the study of official and scientific documents, by communications with learned, industrial and commercial societies, by correspondence with consuls, men of science, explorers, missionaries, and travellers, and by the encouragement of the teaching of geography in schools and colleges.

2. To hold meetings at which papers shall be read, or lectures delivered by members or others.

3. To examine the possibility of opening new markets to commerce and to collect information as to the number, character, needs, natural products and resources of such populations as have not yet been brought into relation with British commerce and industry.

4. To promote and encourage, in such way as may be found expedient, either alone or in conjunction with other Societies, the exploration of the less known regions of the earth.

5. To inquire into all questions relating to British and Foreign colonisation and emigration.

6. To publish a Journal of the proceedings of the Society, with a summary of geographical information.

7. To form a collection of maps, charts, geographical works of reference, and specimens of raw materials and commercial products.

8. The Society shall not enter into any financial transactions beyond those necessarily attached to its declared object, and shall not make any dividend, gift, division, or bonus in money unto or between any of its members.

II. ORGANISATION.

9. The Society shall consist of ordinary, associate, corresponding, and honorary members.

10. A Council shall be chosen annually from the ordinary members to conduct the affairs of the Society. It shall consist of a President, four or more Vice-Presidents, a Treasurer, two or more Honorary Secretaries (including a Secretary for Foreign Correspondence), and twenty-one Councillors.

11. There shall be three Trustees elected by the Society, who shall hold office until death, disability, insolvency, or resignation. They shall be members of the Council by virtue of their office.

12. Any vacancy occurring in the Council during the current year may be filled up by the Council.

III. ELECTION OF MEMBERS.

13. Every candidate for admission into the Society as an ordinary or an associate member must be proposed by a member. The proposal shall be read out at the next Ordinary Meeting of the members, and any objection shall be forwarded in writing to the Secretary within seven days.

14. The election of members is entrusted to the Council. The names of those elected shall be announced from the chair at the next Ordinary Meeting after the election.

15. The Secretary shall within three days forward to every newly-elected member notice of his election, a copy of the Rules of the Society, and a card announcing the days on which the Ordinary Meetings will be held during the session. But the election of an ordinary or associate member shall not be complete, nor shall he be permitted to enjoy the privileges of a member, until he shall have paid his first year's subscription. Unless such payment be made within three calendar months from the date of election the election shall be void.

16. The Council shall have power to elect honorary and corresponding members.

17. Women shall be eligible as members and officers of the Society.

IV. PAYMENTS.

18. An ordinary member shall pay an annual subscription of £1 1s., or he may compound by one payment of £10 10s. An associate member shall pay an annual subscription of 10s. 6d. The Society's year shall begin on the first day of January.

19. Members shall not be entitled to vote or to enjoy any other privilege of the Society so long as their payment shall continue in arrear, but associate members shall not vote nor shall they take any part in the government of the Society.

20. The first annual payment of a member elected in November or December shall cover his subscription to the 31st December in the year following.

21. On the first day of January in each year there shall be put up in the rooms of the Society a complete list of the members with the amount of their subscription due, and as the amounts are paid the fact shall be marked on the list.

22. Notice shall be sent to every member whose subscription shall not have been paid by the first of February, and if the arrears are not discharged by the first of July the Council may remove the member from the list of members. Any member, whose subscription is in arrear for two years shall not be entitled to receive the Journal of the Society.

V. MEETINGS.

23. The meetings of the Society shall be of three kinds—Ordinary, Annual, and Special.

24. In all meetings a majority of those present shall decide all questions, the President or Chairman having a casting vote in addition to his own.

ORDINARY MEETINGS.

25. The Ordinary Meetings of the Society shall be held once a month, from the month of October to the month of May, or oftener, if judged expedient by the Council.

26. All members whose subscriptions are not in arrear shall have a right to be present. All ordinary members shall have the privilege of introducing one visitor.

27. The order of proceedings shall be as follows:—

- (a) The minutes of the last meeting to be read and if correctly recorded they shall be signed by the Chairman.
- (b) Presents, whether of money, books, maps, charts, instruments or specimens made to the Society to be announced.
- (c) The election of new members to be declared and the names of candidates to be read.
- (d) Papers and communications to be read and discussed.

28. At these meetings nothing relating to the rules or management shall be brought forward, but the minute book of the Council shall be on the table at each meeting for the inspection of any member, and extracts therefrom may, with the consent of the chairman, be read to the meeting on the requisition of any member.

29. On occasions of exceptional interest the Council may make provision for a larger admission of visitors.

ANNUAL MEETINGS.

30. The Annual Meeting of the members shall be held at such time and place as the Council shall determine.

31. Fourteen days' notice of such meeting shall be sent to every member within the United Kingdom who has given his address to the Secretary, and notice of the meeting shall be advertised in such newspapers as the Council may direct.

32. The object of this meeting shall be to receive the Annual Report of the Council and the Treasurer's Balance Sheet, to hear the President's address, to elect the Council and officers for the ensuing year, and to transact any other business.

33. Any two ordinary members may nominate candidates for the Council or for office not later than one week prior to the day of election, and the names of candidates so nominated shall be at once put up in the rooms of the Society. The election of the Council and officers shall be by ballot.

SPECIAL GENERAL MEETINGS.

34. The Council may call a Special General Meeting of the Society whenever they shall consider it necessary, and they shall do so if required by 20 ordinary members.

35. A week's notice of the time and object of every Special Meeting shall be sent to all members. No other business shall be entertained than that of which notice has been thus given.

36. Twenty ordinary members shall form a quorum.

VI. COUNCIL AND OFFICERS.

THE COUNCIL.

37. The government of the Society shall be entrusted to the Council, subject to the rules of the Society.

38. The Council shall annually elect a Chairman and Vice-Chairman.

39. The President or the Chairman, or any three members of the Council, may at any time call a meeting thereof, to which every member of the Council shall be summoned.

40. Seven shall form a quorum.

41. In order to secure the most efficient study and treatment of the various subjects which constitute the chief work of the Society, the Council may appoint Committees for special purposes. These Committees, with the approbation of the Council, may associate with themselves any persons—whether members of the Society or not—from whom they may desire to obtain special assistance or information. The Committees shall report to the Council the results of their proceedings.

42. The President, Chairman, Vice-Chairman of the Council, and the Honorary Secretaries, shall, by virtue of their offices, be members of all Committees appointed by the Council.

PRESIDENT AND VICE-PRESIDENTS.

43. The President is, by virtue of his office, the chairman of all the meetings of the Society. In the absence of the President, one of the Vice-Presidents may preside.

CHAIRMAN OF THE COUNCIL.

44. It is the duty of the Chairman of the Council to see that the rules are properly observed, to call for reports and accounts from Committees and Officers, and to summon, when necessary, special meetings of the Council and of Committees.

TREASURER.

45. The Treasurer has the charge of all accounts; he shall pay all accounts due by the Society after they have been examined and approved by the Council.

46. He shall see that all moneys due to the Society are collected, and shall have power, with the approval of the Council, to appoint a collector. All moneys received shall be immediately paid to the bankers of the Society.

47. The bank passbook and the book of accounts shall be laid upon the table at every ordinary meeting of the Council.

48. The accounts shall be audited annually by two members, who shall be elected at an ordinary meeting at least one month before the Annual Meeting.

SECRETARIES.

49. The duty of the Honorary Secretaries shall be:—

- (a) To conduct the correspondence of the Society and of the Council.
- (b) To attend the meetings of the members and of the Council, and minute their proceedings.
- (c) At the ordinary meetings, to announce gifts presented to the Society since their last meeting; to read the names of all new members and of candidates for admission, and the papers communicated to the Society, which have been directed by the Council to be read.
- (d) To have immediate superintendence of all persons employed, to make arrangements for the meetings of the Society, and to take charge of all maps, books, furniture, and other effects.

50. It shall be the more especial duty of one of the Honorary Secretaries to conduct, as may be directed by the Council, correspondence with Foreign Societies, and with persons resident abroad.

51. In addition to the Honorary Secretaries, there shall be a paid Secretary appointed by the Council, whose duties shall be to assist the Honorary Secretaries, to issue the notices of the Council and of the Society, and to act under the instructions of the Council.

The foregoing Rules, as now amended, were approved and adopted at a meeting of the members of the Society, of which due notice had been given to the members, held in the Town Hall, Manchester, Wednesday, October 3rd, 1894.

(Signed)

GEORGE, *President.*

S. ALFRED STEINTHAL, *Chairman.*

F. ZIMMERN, *Honorary Secretary.*

JAS. D. WILDE, M.A., *Honorary Secretary.*

ELI SOWERBUTTS, *Secretary.*

[COPY.]

It is hereby certified that this Society is entitled to the benefit of the Act 6 and 7 Vict., Cap. 36, intituled "An Act to exempt from County, Borough, Parochial, and other Local Rates, Lands, and Buildings occupied by Scientific or Literary Societies."

Seal of Registry of
Friendly Societies.

This 15th day of January, 1895.

E. W. B.





